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BILL JONES was a pioneer when he drove up in his first gasoline buggy at the turn of the century—you could tell by the look of pride in his face he realized the better way of living the automobile would bring. With the automobile and its many blessings, came a new Industry—Natural Gasoline. From the first Hanlon plant built in 1908 with a few barrels capacity, Hanlon-Buchanan now supplies daily thousands of barrels of uniform high quality Natural Gasoline for domestic, coastwise and foreign markets.

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Trends

All Market Centers Included in Upward Price Adjustments

THE crude-price advances which got under way at the start of last week spread before the close to include practically every field in the United States. These increases in the industry's raw-material quotations were accompanied or followed by advances in refinery products—notably gasoline—in most markets. Crude-oil schedules are now the highest since the fall of 1938 and plant quotations on finished products established the first of the week go back to 1938 or earlier to find equal or higher price levels.

CRUDE PRODUCTION *3,776,325 bbl. daily average—down 18,080 bbl. One year ago 3,837,429 bbl.*

CRUDE STOCKS *262,645,000 bbl. as of May 17—down 1,349,000 bbl. One year ago 257,647,000 bbl.*

GASOLINE STOCKS **94,811,000 bbl. as of May 24—down 56,000 bbl. One year ago 101,557,000 bbl.*

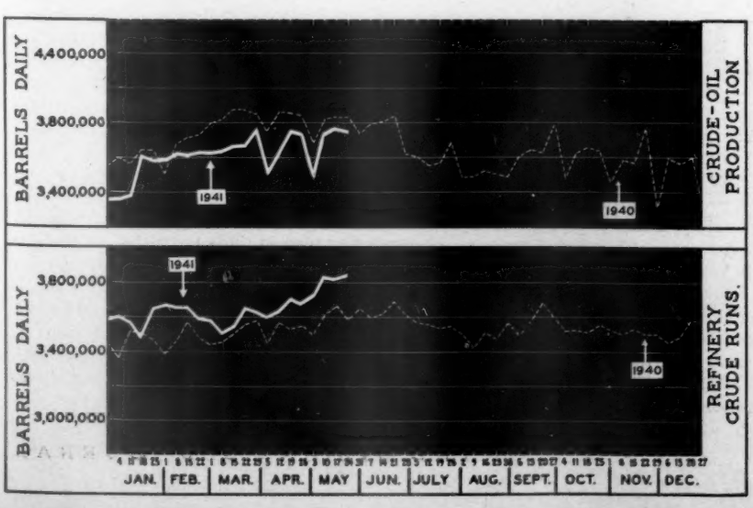
RESIDUAL FUEL-OIL STOCKS *93,774,000 bbl. as of May 24—down 213,000 bbl. One year ago 102,932,000 bbl.*

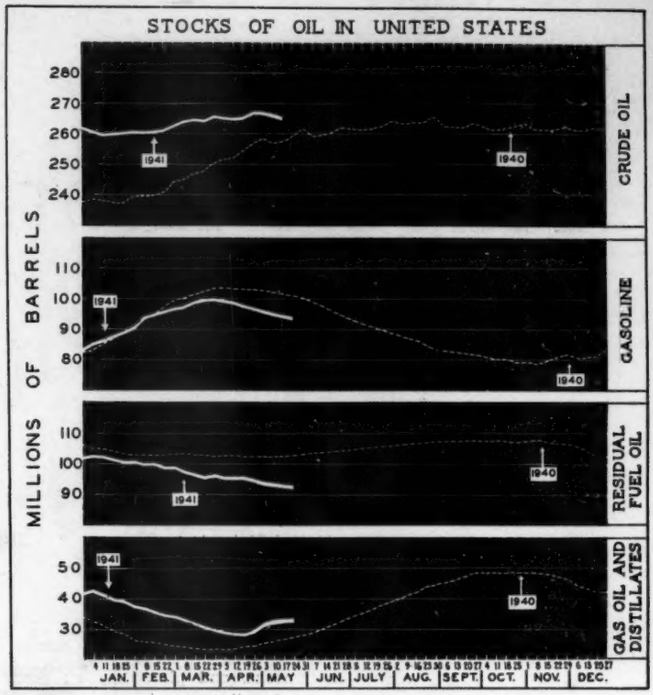
GAS OIL AND DISTILLATES *33,102,000 bbl. as of May 24—up 1,220,000 bbl. One year ago 27,413,000 bbl.*

REFINERY RUNS *3,867,000 bbl. daily week ended May 24—up 62,000 bbl. One year ago 3,580,000 bbl.*

*Includes 7,392,000 bbl. aviation motor fuel, up 140,000 bbl. Year ago 5,427,000 bbl.

With the widest advance in the industry's markets of the past several years completed probable future price trends continue to be subject of discussion, with many producers and refinery operators insisting that additional increases are needed over the next 30 days. Nothing final or definite came from the conference of leading sellers and buyers with the price-administration officials last week at Washington. It was officially stated that the oil industry's representatives gave assurance that no further price advances of a substantial nature would be made effective without the permission of the O.P.A. C.S. The feeling is that this arrangement is no bar to further upward price adjustments provided strength in the industry's markets continues.





Comparative studies reveal that the industry has made considerable progress in recovering from the unsatisfactory price levels which prevailed through a large part of the 1938-1940 period and the first quarter of this year. The situation in the Mid-Continent is typical of the entire area east of the West Coast. Over the past 90 days gasoline prices at refineries in the Mid-Continent have advanced approximately 1¼ cents per gallon. There has been little change in kerosene and other intermediate products but they have not experienced the usual seasonal price reductions. Advances in the low-gravity fuel oils have ranged from 15 to 20 cents per barrel. These comparisons indicate that based on open-market prices, Mid-Continent refiners, after the changes made the first of this week become fully effective, will have increased their plant revenue around 40 cents per barrel of crude-oil throughput. This is substantially more than the 15-cent general advances in Mid-Continent crude-oil schedules.

This comparison has been the basis for predictions that there would be further revisions in crude-oil postings. The answer of refiners to this contention usually is that early this year and through most of 1940 refinery revenue was far too low in relation to crude-oil costs to them and recent advances have no more than brought a return to a normal price relationship between crude oil at the wells and refinery revenue.

DAILY AVERAGE PRODUCTION FOR WEEK

	May 24, 1941	Bur. Mines May est. of demand	May state allowables	May 17, 1941
Arkansas	73,800	83,900	76,673	75,770
California	624,800	598,100	571,000	641,150
Eastern fields	110,600	126,200	.....	110,830
Illinois	322,410	336,100	.....	322,100
Kansas	216,950	213,900	217,900	218,200
Louisiana	319,400	320,300	320,324	314,320
North Louisiana	*72,800*	.....	.....	*71,820*
Louisiana Gulf Coast	*246,600*	.....	.....	*242,500*
Michigan	38,010	40,000	.....	38,405
Mississippi	28,200	22,900	.....	31,940
Nebraska	4,300	4,800	.....	4,400
New Mexico	115,390	113,900	114,000	115,430
Oklahoma	413,625	440,000	400,000	415,400
Rocky Mountain states	106,840	117,400	.....	103,160
Texas	1,402,000	1,382,200	1,417,222	1,403,300
East Texas	*373,650*	.....	.....	*373,700*
West Texas	*258,000*	.....	.....	*256,900*
North Central Texas	*129,400*	.....	.....	*129,250*
East Central Texas	*78,800*	.....	.....	*78,000*
Texas Panhandle	*76,450*	.....	.....	*78,500*
Texas Gulf Coast	*393,100*	.....	.....	*393,700*
Southwest Texas	*92,600*	.....	.....	*93,250*
Total United States	3,776,325	3,799,700	.....	3,794,405

Total production, Jan. 1-May 24, 1941 ..... 497,415,125 bbl.
Same period last year ..... 515,654,093 bbl.

Huge Expansion Planned for Crude-Oil Pipe-Line Facilities

By PAUL REED

Tanker withdrawal is forcing major oil companies to prepare for construction of crude and products pipe lines totaling 3,000 miles from the Louisiana-Texas area to the Atlantic seaboard, and line from Portland, Me., to Montreal, Que.

THE great demands now being made on the pipe-line interests of the United States to provide overland transportation from Texas to the Atlantic seaboard to offset the diversion of tankers for British service, dominate the plans of the industry this week. In this article, attention is directed to the steps now being taken to utilize present facilities, remove bottlenecks, and plan for additional lines to move crude oil to meet emergency requirements.

The withdrawal of 25 tankers from Gulf Coast-eastern seaboard service, the demand for an additional 25 tankers and the prospect of an early demand for 25 more tankers represent the first steps in the Government's program which is of great significance to the industry because it means that unprecedented requirements promise to have a profound effect on all interests engaged in the construction and operation of crude oil and products lines east of the Rockies. The effects of tanker withdrawals will be farreaching even though the results may be counteracted to some extent by various adjustments in the way of greater utilization of railroads, remaining tanker resources, and particularly inland-waterway barge facilities which can be quickly built and economically operated.

All proposals are overshadowed by the magnitude of projects under consideration for the construction of two pipe lines between Texas and Bayway, N. J., one of which it is reported will have a capacity for delivering 275,000 bbl. of crude oil per day while the other will have a capacity for delivering 225,000 bbl. of gasoline and heating oil per day. These two lines would deliver a total of 500,000 bbl. daily.

Middle-West Situation

The first move made to meet tanker shortage was the arrangement to transport crude oil for Standard Oil Co. of New Jersey from East Texas through a series of trunk lines to Bayway, N. J. (The Oil and Gas Journal, May 8, p. 162). These shipments, which will later include Arkansas and Louisiana oil, are scheduled to be made at the rate of 24,000 bbl. per day.

Through a number of the lines in this same hookup, shipments at the rate of 10,000 bbl. per day for Gulf Refining Co. have been moving and will continue to move from Glenpool, Okla., to Marcus Hook, Pa. To increase facilities for moving oil eastward, Standard Oil Co. of New Jersey has discontinued shipping Venezuela oil by pipe line from Marcus Hook to Sarnia, Ont.

By removing bottlenecks existing in the systems and utilizing idle lines between the Mississippi River and the Atlantic seaboard, it has been estimated that 50,000-bbl. capacity can be added to trunk lines. To provide additional capacity beyond this, it is reported that construction of new lines will be necessary between the Mid-Continent area and the East Coast. The principal bottlenecks occur east of Lima, Ohio. Buckeye Pipe Line Co. and Northern Pipe Line Co. are installing additional pumping equipment. Loops are planned at critical points.

Pipe-line construction in progress in the Texas-Louisiana area with types of equipment used in modern construction

Portland-Montreal Line

The Portland, Me.-Montreal, Que., 250-mile, 12-in. crude-oil line is the first project to be officially launched since the emergency arose. Pipe has been ordered and preliminary arrangements are being made by a staff of Humble Pipe Line executives who have gone to Portland to handle the work for Standard Oil Co. of New Jersey. Aerial surveys have been made and contracts are being let this week for the construction of the line in three sections of slightly more than 80 miles each. This line will deliver 50,000 bbl. per day to refineries in the Montreal area.

Texas-Atlantic Seaboard

The immense project which is planned for moving 500,000 bbl. or more of crude oil and refined products from the Texas-Louisiana area to the eastern seaboard promises to be the greatest undertaking in pipe-line history. Plans discussed this week call for the laying of a 24-in. crude-oil pipe line more than 1,400 miles long which would have a capacity for delivering 275,000 bbl. per day. Parallel to this would be a products line capable of delivering 225,000 bbl. of gasoline and heating oil. This line would be about 1,600 miles with western terminals at Texas City, Port Arthur and other Texas Gulf Coast refining points. In connection with this project it has been mentioned that there is a possibility of using pipe in sizes of 24-in. and 26-in. with capacities given as 275,000 bbl. and 370,000 bbl.

Consideration is being given to placing the western terminal near Shreveport, La., since there are several crude-oil lines between Shreveport and the pipe-line centers of the East Texas field which could be utilized. However, there is a possibility that an extension may be laid from Shreveport to East Texas. According to the opinion of pipe-line men who have studied the requirements to be considered in solving the problem presented, the route of the line will extend northeastward crossing the Mississippi River in the vicinity of Memphis, Tenn., and continuing in that direction until it swings eastward in the Marietta, Ohio, area and extends through Pennsylvania parallel to existing lines in the southern part of the state. In the eastern part of Pennsylvania one branch of the line will go to the refining center at Marcus Hook, Pa., while another branch will go northeastward to Bayway, N. J. By following this route there are advantages which contribute to building and operating the line most effectively. According to modern engineering practices, deliveries can be made at the desired rate by spacing stations between 50 and 60 miles apart. Pumps could be operated at pressures between 700 and 750 lb.

Line Specifications

The greatest possible use will be made of purchased electric power for operating pipe-line stations. This will make it possible to utilize the power resources of the area through which the line passes. Equipping stations with electric-driven centrifugal pumps can be accomplished in the shortest time. It is expected that Grade B A.P.I. pipe with thickness of ⅛ in. will be used throughout the length of both lines. Steel tonnage required for laying 24 and 20-in. lines will be nearly 900,000 tons. Pipe companies have capacity for producing pipe in these large sizes at the rate of more than 25 miles per day, provided they are furnished steel for the purpose. If the steel is available and pipe orders for the line have priority, it appears that the pipe could be made as fast as crews could lay it. Construction men estimate that with pipe as that planned for the two

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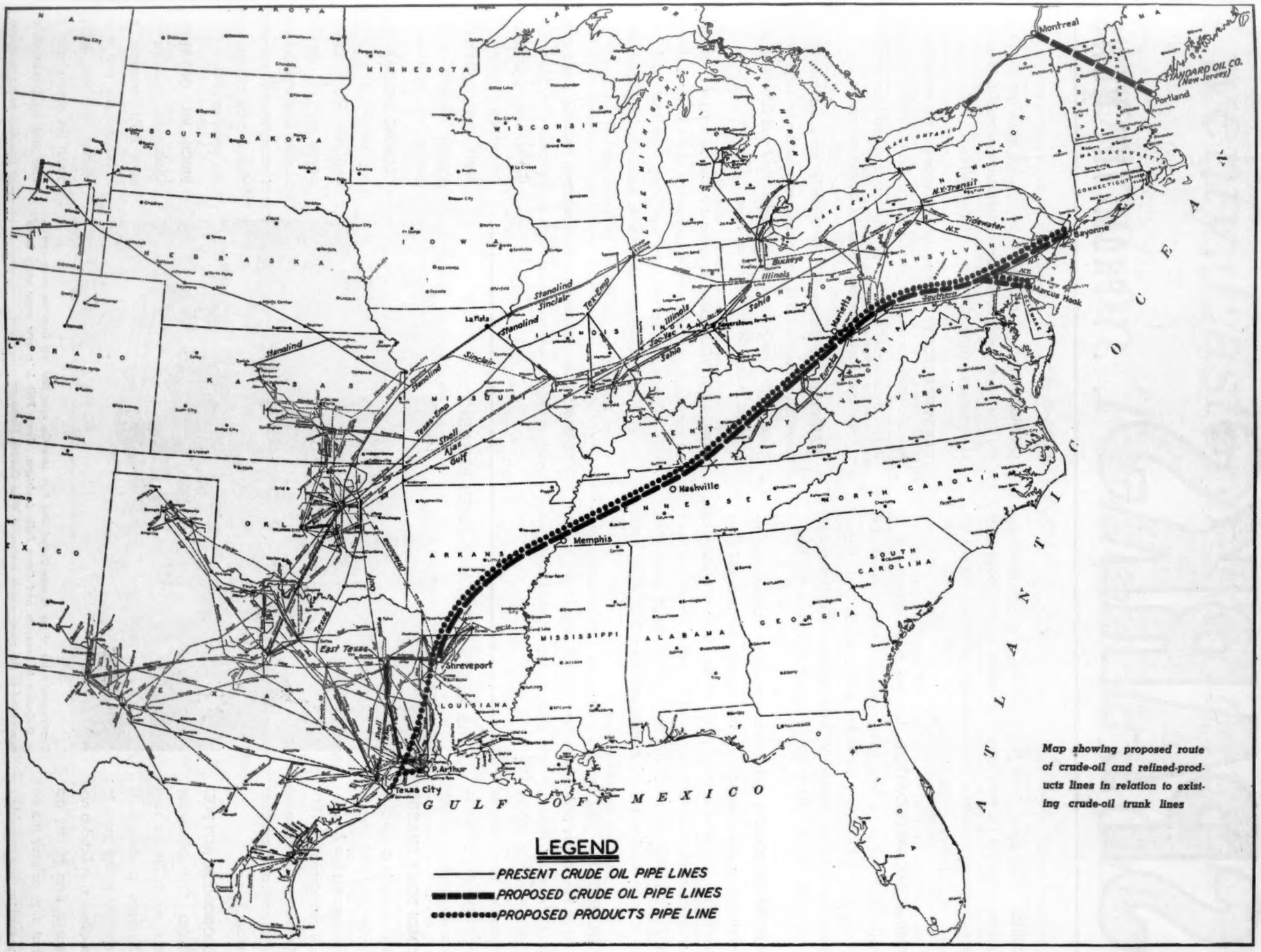


Map showing proposed route of crude-oil and refined-products lines in relation to existing crude-oil trunk lines

SPARKS . . . FROM THE NEWS

CURED: Then there is the Texas operator who was convinced that oil matters in his state were in a terrible mess until he spent a few days in the midst of the Washington confusion. He is back home and silent as to complaints.

TIME FOR CONSOLIDATION: Upward price adjustments in crude oil and products have now offset most of the declines of a 3-year period. Observers agree that the immediate goal of operators should be to consolidate these gains and obtain a new perspective before making any decisions regarding the future.

MATTER OF POLICY: Unitization programs looking toward repressuring or other secondary-recovery methods are being planned for many a Mid-Continent pool besides Oklahoma City—but some observers insist they will suffer the same fate unless there is a change from the hush-hush policy which keeps many operators, lease holders, royalty owners and the public in the dark.

EXPLANATION: "The fact that responsible governmental agencies and legislative bodies have been too unwilling to face boldly the facts before them in a way their country demanded" is the Cole subcommittee's explanation why a coastwise emergency situation has developed.

TIMES DON'T CHANGE: Big gas wells in the Clinton of Ohio and town-lot drilling near Los Angeles are reminiscent of 1921. So are the investigations of crude and gasoline prices.

ECONOMICS, NOT POLITICS: The equanimity with which Illinois' new Devonian production is received is due more to confidence in Louden operators than in any act that may or may not be passed in Springfield.

OVERSIGHT: Tanker, pipe-line and market headlines are causing some operators to overlook the fact that important field developments are taking place at scattered points.

UNSATISFACTORY: The conferences between buyers and sellers of petroleum and the price-administration officials at Washington were secret as to the matters discussed and the short announcement as to results is equally unsatisfactory.

WARNING: Congressman Cole recently gave the industry a clean bill of health. He is now concerned with the failure of Texas to extend its conservation act and California's and Illinois' refusal to enact adequate conservation laws.

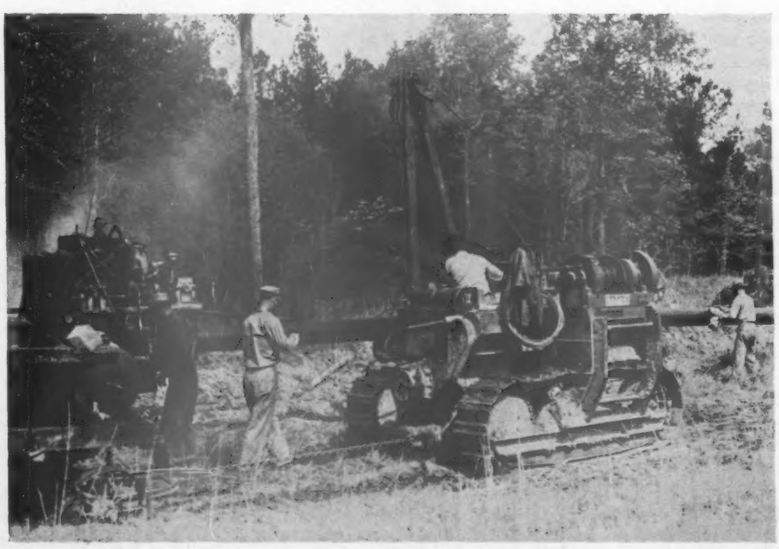
COMPARATIVE SPEED: Prodded by the Government, eastern oil companies are now rapidly completing plans for the construction of Texas-Atlantic seaboard pipe lines. Pipe liners will now be interested in seeing if this speed is maintained at Washington where the final details have to be ironed out.

PERSISTENCE: Reminiscent of the long, tedious exploration which finally opened the oil fields of Southeast New Mexico is the persistence of a major company in testing a likely area in extreme western Kansas, after getting two dry holes.

CLOSING THE GAP: The gap between this year's and last year's drilling operations is rapidly closing. Last week's completions were 10 per cent ahead of the corresponding week in 1940.

PRICE VS. OCTANES: Discussions since the recent A.P.I. sessions at Tulsa indicate that most refiners will not worry about the octane race if they are paid adequately for the extra octanes.

GAS KEEPS THE CAMP FIRES BURNING . . .



Construction scene of the 50-mile United Gas Pipe Line Co. spur line laid from the main system at DeQuincy to Leesville and Camp Polk, Louisiana. Camp Polk is a new army camp being constructed in the piney woods section of West Central Louisiana

Twenty Eastern Refineries Depend on Tankers for Oil

By H. STANLEY NORMAN

DELIVERY of petroleum supplies to the northeastern section of the United States, now engaging the undivided attention of key men in the industry, is one of the most delicately balanced phases in the problem of distributing 1.5 billion barrels of domestic oil annually.

Records of the Department of Commerce, Bureau of Foreign and Domestic Commerce, show that coastwise movement of crude oil and refined petroleum products averaged 1,172,302 bbl. daily during the first 11 months of 1940. Extent to which 20 refineries in the six northeastern refining states are dependent on marine transportation is disclosed in Tables 1 and 2 which show that more than 90 per cent of their raw material is received by boats. The 20 plants, including three of the country's largest refineries, have a combined crude capacity of 671,400 bbl. daily, representing about 15 per cent of the nation's total.

Diversion of 50 and probably 75 United States tankers to British service creates the most acute transportation problem the oil industry has been called upon to solve in recent years.

Coastwise movement of crude and products from the Gulf Coast to Atlantic Coast terminals last year averaged 4,510 bbl. daily per tanker, assuming that the average number of boats in service was 260. Applying the average figure to the number of boats diverted to British service reflects a marine-transportation deficiency of 225,500 bbl. daily. The average is likely low since ocean-going vessels will make up the entire fleet of tankers assigned to British service, whereas smaller boats can be and are normally used in delivering to intermediate ports between the tip of Florida and Baltimore, Md.

A small portion of petroleum moving coastwise as shown in the Bureau of Commerce data is refined and consumed at points along the coastline south of Baltimore. This fraction is too small, however, to be considered in the general analysis of transportation problems as they apply to the northeastern states.

TABLE 1—EASTERN STATES PETROLEUM ECONOMY, 1940

(Figures in thousands of barrels)

Eastern refining states—	Sources of crude oil, 1940					Refinery operations		
	Illinois	Oklahoma	Texas	Other	Foreign	Total crude receipts	Crude runs to stills	Refinery capacity
Maryland	.....	.....	5,999	3,372	3,782	13,153	13,024	15,512
Massachusetts	.....	.....	14,766	1,886	1,444	18,096	18,097	19,412
New Jersey	3,653	3,998	40,017	18,833	7,268	73,769	71,872	91,870
New York	6,547	.....	6,429	878	4,773	18,627	22,060	26,170
Pennsylvania	1,791	12,327	49,696	12,247	15,359	91,420	106,424	122,165
Total 1940	11,991	16,325	116,907	37,216	32,626	215,065	231,477	275,129
Daily average	32	45	319	102	89	587	632	754

Methods of Crude Delivery, Barrels Daily, 1940

	Intrastate receipts			Interstate receipts			
	Pipe lines	Tank cars and trucks	Boats	Pipe lines	Tank cars and trucks	Boats	Foreign boats
Maryland	.....	.....	.....	.....	.....	24,330	10,320
Massachusetts	.....	.....	.....	.....	.....	45,310	4,005
New Jersey	.....	.....	.....	21,100	.....	158,700	20,785
New York	9,833	.....	.....	17,170	2,620	18,310	12,235
Pennsylvania	40,787	213	.....	14,246	49	193,935	89,465
Total	50,670	213	.....	52,516	2,669	440,585	136,810

TABLE 2—EASTERN STATES' CRUDE-OIL SOURCES, FIRST QUARTER, 1941

(Figures in thousands of barrels)

Receiving states—	Texas	Illinois	Louisiana	N. Mexico	Oklahoma	Others	Foreign boats	Total
Maryland	1,419	.....	505	53	.....	354	859	3,190
Massachusetts	3,276	.....	802	198	.....	76	81	4,433
New Jersey	7,978	362	2,219	1,635	630	1,325	1,073	15,222
Eastern New York	1,769	.....	.....	.....	2,603	.....	1,602	5,974
Pennsylvania	13,488	.....	1,269	841	.....	.....	4,956	20,554
Total 1st quarter	27,930	362	4,795	2,727	3,233	1,755	8,571	49,373
Daily average	310	4	53	30	36	20	97	550

Methods of Crude Delivery, Barrels Daily, First Quarter, 1941

	Intrastate receipts			Interstate receipts			
	Pipe lines	Tank cars and trucks	Boats	Pipe lines	Tank cars and trucks	Boats	Foreign boats
Maryland	.....	.....	.....	.....	.....	25,900	9,545
Massachusetts	.....	.....	.....	.....	.....	48,355	900
New Jersey	.....	.....	.....	13,965	.....	143,245	11,920
New York	9,020	.....	.....	18,945	2,735	21,135	17,800
Pennsylvania	40,790	170	.....	13,255	1,000	179,000	95,235
Total	49,810	170	.....	46,165	3,735	417,635	135,400

(Note.—Rhode Island receipts included in Massachusetts.)

Crude Deliveries Declining

Refineries in the six northeastern states that are entirely or largely dependent on marine transportation for their crude supplies are shown in Table 4. Deliveries of interstate crude by boats to the six northeastern refining states dependent on outside crude supplies for their operations dropped more than 5 per cent during the first quarter of this year below the level of 1940. Most of the decline from an average of 440,585 bbl. delivered to the six states in 1940 to 417,635 bbl. in the first quarter of this year was suffered in March. Still, moderate declines have been in evidence since the start of the year. Daily average deliveries of crude by United States boats in January 1940 were 215,355 bbl., compared to 196,387 bbl. for the same month this year. The lowest average for any month in 1940 and through the first quarter this year was 167,838 bbl. daily reported for March, the last month covered by avail-

(Continued on Page 30)

TABLE 3—RECORD OF CRUDE AND PETROLEUM PRODUCTS MOVED FROM GULF IN COASTWISE TRADE

(Data converted from original reported by Department of Commerce)

(Figures in thousands of barrels, except daily average)

1940—	Crude oil	Gasoline	Kerosene	Fuel oil	Distillate fuel	Lubricating oil	Other products	Total products	Total crude and products	Dly. av. all shipments (bbl.)
January	15,756	7,078	2,154	9,075	5,408	398	318	24,431	40,187	1,296,355
February	13,559	6,341	1,925	7,507	3,848	320	237	20,178	33,737	1,163,345
March	15,224	9,760	1,990	7,542	2,918	433	333	22,976	38,200	1,232,260
April	14,422	10,697	1,740	6,126	2,162	339	489	21,553	35,975	1,199,165
May	15,803	10,803	1,714	5,432	2,135	486	406	20,976	36,779	1,186,420
June	15,132	10,117	1,381	4,939	1,705	447	443	19,032	34,164	1,138,800
July	14,445	11,287	1,483	5,022	2,101	396	520	20,809	35,254	1,137,225
August	13,606	11,154	1,839	4,976	1,161	408	515	20,053	33,659	1,085,775
September	12,327	10,152	1,803	6,107	1,625	333	334	20,354	32,681	1,089,365
October	14,000	10,526	1,754	5,530	1,803	449	257	20,319	34,319	1,107,065
November	12,997	10,105	2,158	7,530	3,171	331	302	23,597	36,594	1,219,800
Total	157,271	108,020	19,941	69,786	28,037	4,340	4,154	234,278	391,549	.....
Daily average	471	323	60	209	84	13	12	701	.....	*1,172,302

*Daily average for 11 months, 1940.

Seized Tankers May Relieve Shortage Made by Diversion

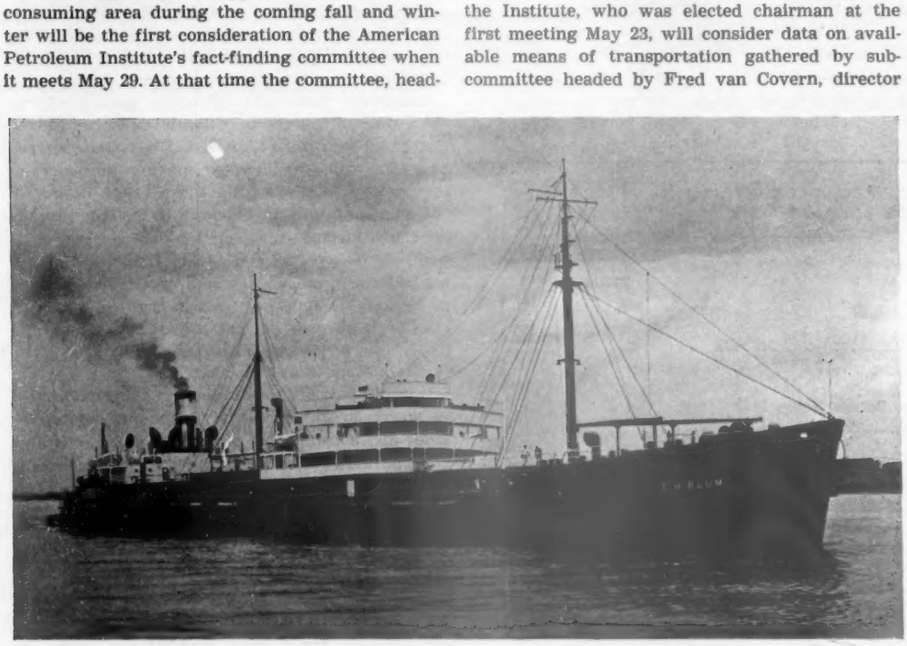
By J. P. O'DONNELL

NEW YORK, May 27.—Expedients which will enable the oil industry to meet the problem of furnishing adequate supplies to the East Coast consuming area during the coming fall and winter will be the first consideration of the American Petroleum Institute's fact-finding committee when it meets May 29. At that time the committee, headed by W. R. Boyd, Jr., executive vice president of the Institute, who was elected chairman at the first meeting May 23, will consider data on available means of transportation gathered by subcommittee headed by Fred van Covern, director of the Institute's department of statistics.

Two new members were added to the fact-finding committee, William F. Humphrey, president, Tide Water Associated Oil Co., and L. J. Drake, Union Tank Car Co., Chicago. Also attending the meeting were E. E. Soubry, representative of the British Government, and M. M. W. Bowen, of the U. S. Maritime Commission, who discussed the tanker situation.

It is entirely possible that the needs of the eastern seaboard area will be adequately supplied following the winter of 1941-42 by additions to the tanker fleet and construction of new pipe lines, but the immediate problem of meeting the demands of the coming winter may prove extremely difficult. Neither the pipe lines that are expected to be completed nor the tankers that are expected to be delivered before the beginning of the heating oil season will be sufficient to meet the extraordinary demands that are anticipated.

Expanded movement of inland crude oil and products to the East Coast by pipe line, barge and tank car, the use of tankers normally laid up at this season (an average of 23 were laid up during the summer of 1940) and the taking over of foreign tankers in Western Hemisphere ports would enable the industry to offset the diversion of tankers to British service if demand for oil products was no greater than in 1940. However, the indicated increase of 10 per cent in demand for the principal petroleum products will be difficult to meet.



Atlantic Refining Co. tanker, SS E. H. Blum, after a record run from Port Arthur, Tex., leaving the Delaware River anchorage under escort of tugs with a 146,000-bbl. cargo of Texas crude

Second British Request

The second British request for 250,000 deadweight tons, equivalent to approximately 25 average tankers, is expected to be filled to a large extent from seized vessels in Western Hemisphere ports. There are 23 of these tankers, 12 in United States ports, 8 in Mexico and 3 in Venezuela, with an aggregate deadweight tonnage of 170,000 tons, equivalent to 68 per cent of the second British request. Legislation permitting the Government to take over foreign vessels in American harbors has been agreed upon by a joint House-Senate committee and its speedy passage is assured. Of the dozen tankers in the United States ports, two are Italian, one German, two Danish, two French and five Belgian.

Equally as important to the permanent solution of this problem as the construction of new pipe lines and tankers is the question of future British needs. That they will ask for more tankers is regarded as a certainty and predictions are that a request for an additional 25 tankers soon will be forthcoming. This prediction is voiced despite the fact that the allocation of the original 25 is only being completed and that requisitioning of the second 25 was made only last week.

The belief that further requests will be made is based in part upon reports of an apparent attempt by the German submarines to concentrate their attacks on tankers and in part upon the fact that the war front is constantly widening. Recent German reports have claimed the sinking

The Marine Situation at a Glance . . .

At the outbreak of the war there were nearly 1,800 ocean tankers, of which 427 were under the American flag. Marine transportation is an integral part of the oil business. To be assured of the necessary facilities to transport crude to their refineries and products to their markets, the oil companies built large fleets of their own.

Nearly two-thirds of the world's tanker tonnage is owned by the different oil companies. The remainder is owned by individuals or companies not directly engaged in the oil business. This so-called "free tonnage" is the amount available for charter. The rates paid fluctuate with supply and demand. In times of tonnage scarcity there is keen competition for this free tonnage. During times of surplus the owners thereof charter down to rates that cover only out-of-pocket costs. It is these charter rates that establish what the oil companies themselves can realize from the use of their own tonnage.

To enable American shipowners to meet the higher building and operating costs, our shipping laws prohibit the employment of foreign flag vessels between American ports. This restriction stimulated the building of an American flag tanker fleet slightly in excess of the average monthly requirements. When there is a shortage of foreign flag tankers, such as now exists, high rates prevail in that service and American flag tonnage is attracted to international movement. This competitive demand results in increases in American coastwise rates.

The balance between supply and demand has been upset as a result of the war. Trade routes have been affected through changes in sources of supply. The discontinuance of shipments to continental Europe reduced the demand, which has been largely offset by increased requirements in this country due to the national defense activities. The withdrawal of tonnage controlled by the German and Italian governments reduced the number of tankers available. However, the chief reason for the present tanker shortage is the high rate of sinkings and the additional time required for deliveries within the war zone as a result of the convoy system. A tanker today in this service takes about twice as long to complete a voyage as was necessary in peace times.

Since the declaration of war our foreign affiliates have lost 18 tankers and 5 more have been seriously damaged. These losses have been covered by war insurance either in dollars or pounds. During the same period orders have been placed with American shipyards for 22 new vessels. To maintain the company's fleet at the maximum number of ships it has been found necessary, despite higher costs of operation, to carry out extensive repairs to some of our older vessels which, under peacetime conditions, would probably have been scrapped.

—From Standard Oil Co. (New Jersey) Annual Statement to Stockholders.

of almost 90,000 tons of tankers, giving substance to reports of concentrated tanker attacks. The reported closing of the Iraq pipe line which supplied the British at Haifa, Palestine, would probably necessitate increased shipments from Iran around Saudi Arabia to eastern Mediterranean bases.

There is no disposition on the part of United States tanker men to deny the British request but they do profess an inability to understand the urgency of it. They point to the fact that the United Kingdom's prewar fleet consisted of 435 tankers, a number which was virtually doubled by the addition of 63 tankers from the various dominions, a number of Belgian tankers and the fleets of Norway and Denmark, which totaled 272 and 107 vessels respectively. Many of these tankers were engaged in supplying continental Europe and now are at the virtually exclusive command of the United Kingdom. In addition England's civil requirements have been reduced vastly by the rationing of gasoline which has limited consumption per vehicle to from 4 to 10 gal. per month depending on its horsepower and by an increase in gasoline prices of 65 per cent.

There have been unconfirmed reports that Great Britain has been using tankers for "mobile" storage and that oil tankers have been employed for the transportation of grain. It was reported that only recently the long haul from Abadan, Iran, to the United Kingdom was abandoned in favor of the shorter haul from the Western Hemisphere. These reports combined with the availability of such a large volume of tonnage have caused United States tanker men to wonder if Great Britain's needs are sufficiently great to warrant the disruption of United States transportation facilities with a resultant threat of a shortage of supplies in this country's greatest consuming area.

Cause of Slower Schedules

Difficulties attendant to convoying are recognized. Faster ships are limited to the speed of the slowest vessels in the convoy so that some trips have been made at an average speeds of 5 knots. Tankers leaving gulf ports have required 80 to 100 days to complete a round trip against a normal average of from 40 days for fast and 50 days for slow ships. Waits of as long as a month have been known at convoy-origin points. These difficulties have just about doubled the tanker requirements.

Prospects of the American tanker fleet being expanded rapidly enough to meet the demand are impossible. The latest report of the American Bureau of Shipping lists 142 tankers under construction in United States shipyards. Six, averaging 10,000 gross tons each, have been built so far this year and 21 more are expected to be delivered before December 31. According to estimates which may be affected considerably by many factors, 62 will be delivered in 1942, 50 in 1943 and the remainder later. In terms of carrying capacity these vessels will be equivalent to far more than a similar number of average older tankers.

If all the tankers which are built in this country between now and the fall of 1942 are made immediately available for coastwise service, it is probable that by that time there will be adequate carrying capacity. Acting against this possibility are the likelihood of further British requirements and the needs of the U. S. Navy which would be increased if this country entered the war. The latter condition would undoubtedly deprive coastwise service of the 11 national-defense tankers which are being built for the optional use of the Navy by Socony-Vacuum Oil Co., Inc., and Charles Kurz Co. The first of these vessels, all of which are of 16,600 deadweight tons with a rated speed of 16½ knots, was completed last month.

An encouraging fact is the report that the first of the 72 tankers ordered by the U. S. Maritime Commission will come off the ways at the Chester, Pa., shipyards of the Sun Shipbuilding & Drydock Co. in January instead of March as was originally assumed. It is also reported that these tankers will be completed at the rate of one every 10 days. This contract calls for the building of 36 vessels of 10,750 gross tons and 36 of 8,350 gross tons at an estimated cost of $180,000,000.

Whether or not pipe lines will be built apparently depends entirely on the attitude of the Department of Justice. If it permits the cooperation of companies in the construction of a "national defense" line, which none alone could afford to finance, it is believed that such construction will be undertaken immediately. Proponents of pipeline construction point out the fact that for the sum allotted for the construction of tankers under the Maritime Commission contract, two pipe lines from the Texas or Gulf Coast regions to the eastern seaboard could be constructed and that such lines could deliver 275,000 bbl. of crude oil and 370,000 bbl. of gasoline and heating oil daily. This would be the equivalent of 130 average tankers. An additional factor held to favor the pipe lines is that the danger of their being damaged by military action would be small compared to the risks of water-borne transportation.

NEXT WEEK—

Deep Well Engineering Number

A complete study of 1941 practices covering the drilling and operation of deep wells which are rapidly increasing in importance as a source of current oil supplies and reserves for the future. Editorial coverage includes: Description of the drilling of representative deep wells in all parts of the United States, engineering and operating methods, specific practices, exploration, statistics and future trends.

EXTRA FEATURE

For mail subscribers, a 33 by 48-in., four-color wall map showing the location by name of the oil and the natural-gas fields in the United States. This is the most complete field map ever made available to the petroleum and natural-gas industries.

State Conservation Heads at Capital to Discuss Priorities

WASHINGTON, D. C., May 27.—Representatives of state oil-regulatory bodies and the interstate compact met in conference here today with R. E. McConnell, chief of the Conservation Section of O.P.M., to discuss possibilities of saving steel in oil production, particularly so that steel may be available for construction of new pipe lines to the East. No official announcement of results of the conference was available at edition time.

Those invited were, from the Compact Commission: J. H. Alphin, Arkansas; Warwick M. Downing, Colorado; Clarence T. Smith, Illinois; Andrew F. Schoeppel, Kansas; B. A. Hardey, Louisiana; P. J. Hoffmaster, Michigan; Hiram M. Dow, New Mexico; W. J. Holloway, Oklahoma; J. C. Hunter, Texas; from state agencies: Reford Bond, Oklahoma; Olin Culbertson, Texas; Joseph L. McHugh, Louisiana; C. O. Bailey, Arkansas; A. Andreas, New Mexico; Jerry Sadler, Texas.

While Mr. McConnell did not state what possible methods of saving steel might be discussed, observers suggested that they probably would include reduction of drilling through wider well spacing, fewer offset wells, and curtailment of wildcatting.

Officials insist a new line from Texas to New York is still in the discussion stage though they expect it to be built and as rapidly as possible. The line will be the biggest ever built and current discussion is that it will be 24 or 26-in., financed by a group of major companies, and open for use by the entire industry. Priority orders to obtain steel will be needed and will be granted if not interfering with actual armament production, but no formal request for priorities has been made yet. Planning has not yet reached the stage of reference to the Justice Department which insists on passing on antitrust aspects of industry cooperation asked by defense agencies.

Such reference may possibly have some effect on settlement of pending oil suits by giving the majors a bargaining point, but settlement negotiations broke up last week with no progress. Another attempt to negotiate a decree will be made in 10 days.

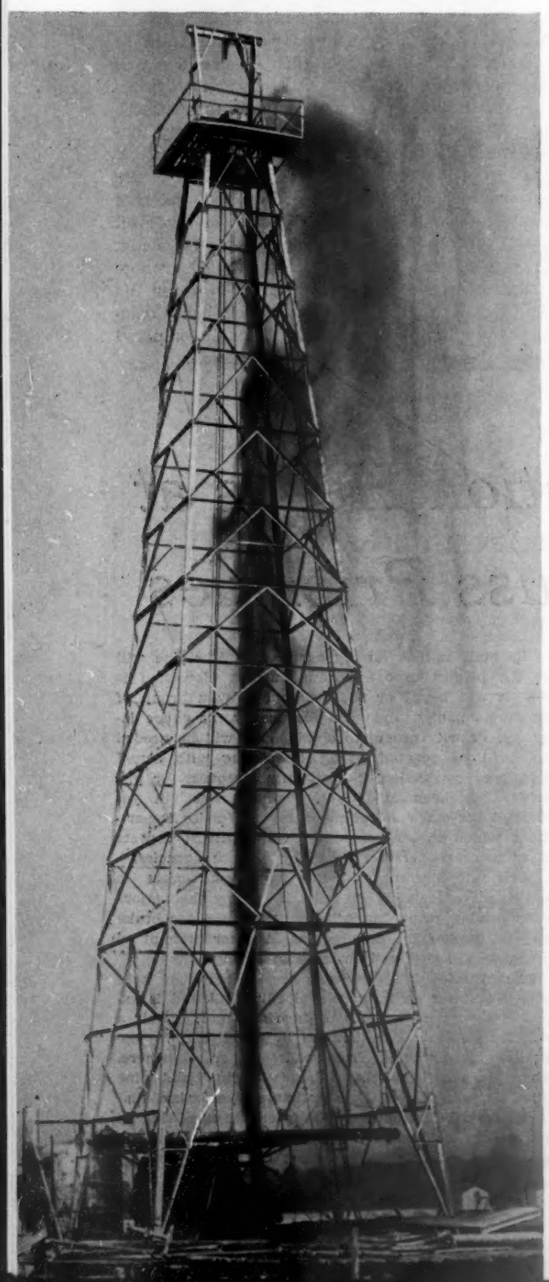
The House interstate-commerce committee will meet Thursday on new Cole pipe-line bill and is expected to report it without hearings and to ask a rule for its early consideration by the House. No opposition is expected from railroads or elsewhere. There is some thought railroads might build pipe lines. Representative Cole intimated yesterday that there may be action on his federal control bill if Texas does not extend its conservation law and Illinois and California do not enact such legislation.

Orderly Development Indicated For Louden Devonian Pay

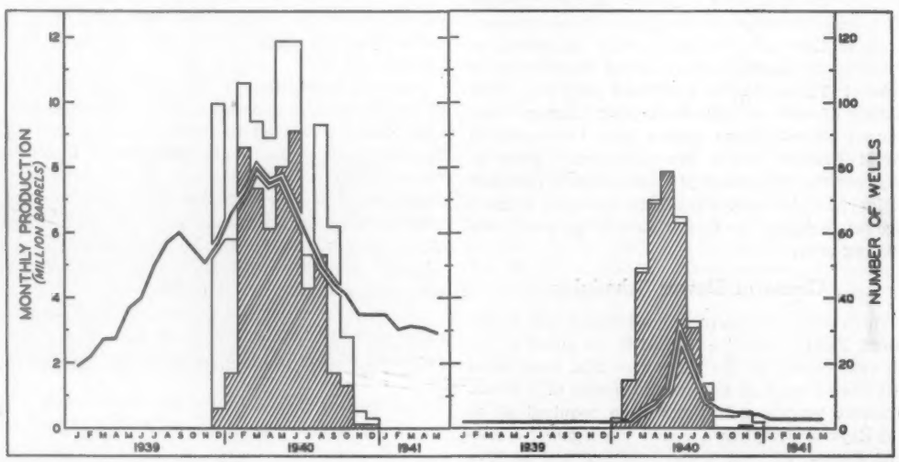
By W. V. HOWARD

The significance of the Devonian discovery in the Louden, Illinois field can not be appraised until the producing area has been more fully outlined. Production from the Devonian in other fields together with the history of the development at Louden permit a tentative appraisal of the possibilities of the new pay.

NEWS of the successful completion of Whisenant & Trenchard 25-D Lilly in the Devonian in the Louden, Illinois, field for 681 bbl. in 8 hours through 5/8-in. choke has been received with mingled feelings by the oil industry. Some remember the flood of oil that came from the Devonian at Centralia and Salem a year ago and wonder if the new field will disturb the present strong market as did the other Devonian fields. Others recall that development at Louden has been orderly and that sound operating principles have been in effect since the early days in the field and assume that these practices will continue. Still others wonder to what extent the Devonian play at Centralia and Salem actually paid off and consider



Whisenant & Trenchard 25-D Lilly, Louden Devonian discovery well



Relation between completions and production at Salem (left) and Centralia (right) during the Devonian drilling campaign of 1940. Shaded blocks show number of Devonian completions. Unshaded blocks represent completions in other pays

be estimated at some 2,500,000 bbl., making the ultimate production from the Devonian 13,000,000 bbl. The 318 wells thus average 40,880 bbl., or 31 times the average initial production. The average cost of a completed well can be placed at $25,000. The estimated ultimate recovery of the Devonian at Centralia is 3,125 bbl. per acre.

Development in Centralia began in the central part of the field and worked northward. The best wells in the field were almost the last drilled so that average initials for the first 212 wells completed were around 600 bbl. In June, 63 wells were completed with an average initial of 3,369 bbl. Table 1 summarizes the development of this field during the Devonian campaign.

that Illinois operators have learned by experience that too many wells drilled in too much of a hurry sometimes lead to heavy losses.

Development at Centralia

Before considering Louden, it might be well to go over some recent history in Centralia and Salem. When the Devonian production was discovered at Centralia, the field was practically completely drilled up in the upper horizons. During the Devonian play, 318 producers were completed in that formation with an average initial production of 1,304 bbl. Only 26 wells were completed in other pays and these had an average initial of 56 bbl. Production in Centralia was on a steady decline and had fallen from 200,000 bbl. a month to 150,000 bbl. during 1939. In June 1940 it reached a peak of 2,953,650 bbl. and declined to 434,930 bbl. in December. At present, it is producing at the rate of 350,000 bbl. per month.

Based on the projected decline curve, the production which can be ascribed to the Devonian to date is 10,397,000 bbl. and future production can

TABLE 1—PRODUCING WELLS COMPLETED DURING THE DEVONIAN PLAY AT CENTRALIA
(December 1939 to December 1940)

	Devonian pay			Other pays		
	No.	Init. prod.	Ave.	No.	Init. prod.	Ave.
Dec.	0	0		1	94	94
Jan.	2	1,227	614	0	0	0
Feb.	15	7,515	501	1	18	18
Mar.	48	24,983	502	1	125	125
Apr.	69	39,126	567	2	90	45
May	78	69,788	895	0	0	0
June	63	212,144	3,369	2	150	75
July	31	47,832	1,542	2	159	80
Aug.	11	11,894	1,081	3	244	81
Sept.	0	0	0	4	161	40
Oct.	0	0	0	4	167	42
Nov.	1	90	90	4	230	57
Dec.	0	0	0	2	29	15
Total	318	414,599	1,304	26	1,467	56

Devonian at Salem

The Devonian development at Salem followed that at Centralia in some respects. The drilling up of the lower pay took longer, but covered more acreage. The picture was complicated by the fact that the upper pays were not completely drilled up when the Devonian play started. While 542 producers were brought in in the Devonian, there were 387 in the McClosky, Benoist, Aux Vases and

TABLE 2—PRODUCING WELLS COMPLETED DURING THE DEVONIAN PLAY AT SALEM

(December 1939 to December 1940)

	Devonian pay			Other pays		
	No.	Init. prod.	Ave.	No.	Init. prod.	Ave.
Dec.	6	17,763	2,945	94	49,742	529
Jan.	17	61,667	3,627	41	8,603	209
Feb.	86	295,621	3,437	20	4,431	222
Mar.	76	160,483	2,112	18	5,920	329
Apr.	61	94,332	1,546	28	5,877	210
May	80	103,415	1,293	39	12,967	381
June	91	95,339	1,048	28	5,990	200
July	43	30,175	702	10	1,164	116
Aug.	50	27,448	549	43	8,744	203
Sept. ..	17	8,218	483	45	7,146	159
Oct.	13	2,043	157	15	1,869	125
Nov.	1	267	267	4	235	59
Dec.	1	275	275	2	200	100
Total	542	896,956	1,655	387	112,488	291

other pays. Unlike Centralia, the first wells drilled to the Devonian at Salem had the highest initials and initial production gradually declined from a high of 3,627 bbl. during January 1940 to below 200 bbl. for the last 15 wells drilled. Average initial production was 1,655 bbl., or 351 bbl. higher than the Centralia initials. Production ascribed to the Devonian was 4,400,000 bbl. in March 1939, had declined to 1,774,000 bbl. in August, and is now around 350,000 bbl. per month. Past production from the Devonian has been 31,000,000 bbl. and, allowing 5,000,000 bbl. future production, gives an estimated ultimate of 36,000,000 bbl. This is 66,420 bbl. per well, or 40 times initial production, and 6,000 bbl. per acre.

Jack Trenchard and J. B. Whisenant, Texas operators, who brought in Louden's first prolific Devonian well

Estimates of Devonian production at Salem are made difficult by the fact that many wells were perforated at the Salem and St. Louis levels and this oil is credited to the Devonian also. The history of development during the Devonian play at Salem is shown in Table 2.

Possibilities at Louden

Based on the history of Centralia and Salem, and considering the record of the Louden field in orderly development and production, a few predictions may be made regarding the future of the Devonian. Ultimate recovery may be about equal to that from Centralia and should be less than from Salem because of the added production in that field from the Salem and St. Louis limestones. A fair early approximation would be 4,500 bbl. per acre. If the 20-acre spacing plan in effect in the north end of the field is carried into the Devonian, this would yield about 90,000 bbl. per well or 50 per cent more than at Salem and 125 per cent greater than at Centralia.

Of the two wells recently completed in the Devonian, Jarvis 1-D Sinclair was completed in 1 ft. of pay at 3,024 ft. for 35 bbl. an hour with about 25 per cent water. This well is in NW NE 29-8n-3e. Whisenant & Trenchard 25-D Lilly is in E½ NW SE 16-8n-3e, or about 1 mile to the northeast. Both wells are on the west side of the axis of the pool. Whether the Jarvis well limits production to the south is not yet known as the water intrusion may be due to some local condition. Present indications are, however, that the Devonian production will occupy a much smaller area than that from the Cypress, Paint Creek and Benoist sands.

Other Pools

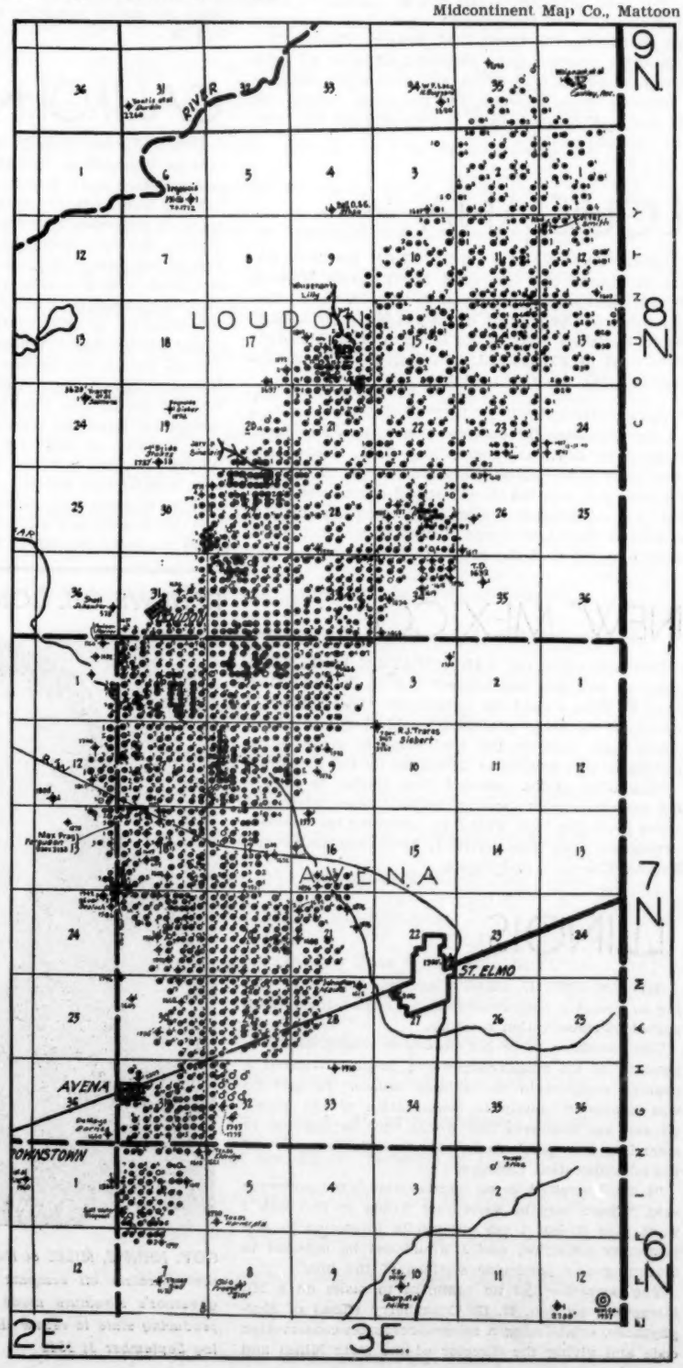
Devonian production has been obtained in Bartelso (1n-3w), Irvington (1s-1w), Sandoval (2n-1e) and Tonti (3n-2e) and some small production has been found in Sorento (6n-6w) and Decatur (17n-2e). In the old fields, the Martinsville pool (10n-14w) in Clark County produced from the Devonian. Dry holes have been drilled in the Carlyle, Fairman and Patoka fields, leaving only St. James in the western part of the basin play to be tested.

The record established by Louden operators together with the caution imposed by experience in the Devonian leads to the belief that the Whisenant & Trenchard discovery will cause the development of important new reserves; that these new reserves may reverse the gradually downward trend of Illinois production but that they will not lead to a disordered scramble for production with the temporary flooding of the market with surplus oil. Landowners in the Louden area have watched their neighbors at Centralia and Salem reap large return over brief periods followed by greatly diminished income while the income from their own production has remained steady. Conflicts with producing companies have therefore been reduced to a minimum and it is likely that royalty owners will welcome the new find as additional assurance of steady income over a relatively long period in the future.

The Louden field has provided a contrast with the other major fields in Illinois. Many operators hope that orderly development and conservation practices will continue in the exploitation of the Devonian in order that the profitableness of sound production practices may be demonstrated.

Louden field showing location of the two Devonian wells, Whisenant & Trenchard 25-D Lilly and Jarvis 1-D Sinclair

Midcontinent Map Co., Mattoon



STATE CAPITALS...

TEXAS

DAILY-AVERAGE ALLOWABLE production for June in Texas will be 1,411,732 bbl., which, less the normal 3.5 per cent allowance for under-production, will give a daily output of 1,362,280 bbl., or 9,420 bbl. a day less than the market demand estimated by the United States Bureau of Mines.

The June proration order will be unchanged from that prevailing in May, except for a 12-bbl. reduction per well in the Old Ocean field, Brazoria County. The new order provides for 9 shutdown days for all fields except the Panhandle which will have 4 idle days.

Average daily allowable for the week ending May 24 was 1,427,634 bbl. daily, a gain of 1,050 bbl. over the previous week.

LOUISIANA

DAILY ALLOWABLE PRODUCTION for June was set at 319,500 bbl. last week by the state Minerals Board. Next month's allowable is 824 bbl. daily below the authorized production of 230,324 bbl. daily in May. South Louisiana received an increase of 15 bbl. daily to a total of 250,038 bbl. in June. North Louisiana was cut 839 bbl. to 69,462 bbl.

RESPONSIBILITIES OF REPRESENTING Louisiana on the Interstate Oil Compact Commission have been retained by Gov. Sam Jones. Maj. B. A. Hardey, former conservation commissioner and now member of the state minerals board, will attend commission meetings and report to Governor Jones when the chief executive is unable to attend. Louisiana was not previously a member of the compact.

NEW MEXICO

CONTINUANCE OF PARTICIPATION in the interstate oil compact was assured last week when Gov. John E. Miles signed the agreement. "Those states in which oil is being produced," said Governor Miles, "have made possible the application of conservation principles that have been developed by the industry."

Four other states preceded New Mexico in extending the oil compact for a period of 2 years. Signatory states preceding New Mexico in extending the compact agreement until September 1, 1943, are Oklahoma, Kansas, Colorado, and Texas.

ILLINOIS

GOV. DWIGHT H. GREEN has indicated he is willing to accept a compromise on an administration-supported oil-conservation measure.

The executive made his statement shortly after opponents of his antiphysical-waste program offered a counter measure in the Illinois Senate. He said he was interested chiefly in conservation of the state's oil and gas resources and would "not be opposed to amending any particularly objectionable features" of the administration measure.

"I am interested in oil conservation," the governor said. "There may be something wrong in this bill. I went over it, but I am not vitally interested in any particular provision, and I would not be opposed to amending any particular sections of the bill."

The governor had no comment to make on a bill introduced by Sen. R. G. Crisenberry (Rep.) of Murphysboro, establishing a mineral-resources-conservation code and giving the director of the state Mines and Minerals Department authority to enforce the code. The "compromise" measure omits the three-man-commission plan embodied in the key bill, together with provisions governing common purchasing, well spacing and the limitation of production of wells where physical waste occurs.

Sen. Charles Carpentier, of East Moline, chairman of the senate gas and oil-conservation committee, and Sen. Arnold Benson, of Batavia, majority leader, said final action probably will be taken on the principal bill after the senate considers it in an executive session May 28.

CALIFORNIA

THE NEWLY ELECTED conservation committee held its organization meeting in Los Angeles May 22 and reelected A. H. Bell chairman and voted to leave the top well allowable at 142 bbl. daily in June. In order to take care of 2,700 bbl. per day of new production, the June quota was increased to 575,000 bbl. This is the first time in several months in which the maximum well allowable was not reduced and is the first time in several months also that the state's quota was changed. In addition to Chairman Bell the committee elected Lloyd Williamson first vice chairman, Richard Fenton second vice chairman, and William L. Hobro secretary. The committee also elected R. P. Huggins member at large for the state; E. B. Hall, member at large for Los Angeles Basin; Ross McCollum, member at large for the San Joaquin Valley; William Farrand, member at large for the coastal district, and Richard Fenton, member at large representing the stripper-well operators.

F. M. Ziegler was elected chairman of the administrative committee with R. P. Huggins, W. H. Morgan, R. I. Brown, and Wilbur Harrison as members. V. C. Whaley was elected chairman of the allocation committee with H. S. Stark, Max App, Joseph Jensen, L. L. Aubert, W. H. Geis, and Ross McCollum as members. R. D. Montgomery, who had been nominated as chairman of the administrative committee, resigned so that a new chairman of the Coles Levee field will be selected in the near future. R. R. Boyd also withdrew his name as a nominee for membership on the allocation committee. Discussion of the allocation for June, during which considerable objection to further reduction of top well allowables was registered, finally was settled when the committee voted to increase the allowable enough to make room for new production during June, and to await action by the newly elected allocation committee before determining upon the definite policy to be followed during the next few months.

RENEWS OIL COMPACT . . .

GOV. JOHN E. MILES of New Mexico last week signed the interstate oil compact extension agreement. The governor's signature made New Mexico the fifth oil-producing state to renew the compact for 2 years ending September 1, 1943

KANSAS

WAYS TO INCREASE the state's pipe-line facilities are to be investigated by the Corporation Commission in collaboration with oil companies at the specific request of Gov. Payne Ratner.

Capacity of Kansas pipe lines to refineries inside and outside the state now is 242,000 bbl. daily, the governor pointed out in calling attention to the probability that allowable would be 250,000 to 260,000 bbl. daily by August 1.

OKLAHOMA

LIQUEFIED PETROLEUM GAS business has come under state regulation. The senate and house have passed Bill 390 which creates a department under the state fire marshal, who becomes ex-officio head of the division with two inspectors. An inspection fee of $1 for tanks of from 1 to 59 gal. is levied. The charge graduates up to $5 for tanks of 401 gal. capacity or more.

HEARING HAS BEEN SET for June 3 on petition of Magnolia Petroleum Co. and others for 20-acre spacing in Sections 15 and 16-8n-8e, near Wewoka, in Seminole County, Oklahoma.

MISSISSIPPI

THE MISSISSIPPI OIL AND GAS BOARD has abandoned 40-acre spacing in the Tinsley field of Yazoo County, the only important oil field in the state. Following hearings, special permits were issued for 12 wells, all on tracts of less than 40 acres or off center of 40-acre tracts. Two other locations were contested by offsetting operators, and decision regarding issuance of their permits will await a hearing to be held May 27. On June 5, the board will hear additional requests for special drilling permits in the field.

MICHIGAN

MICHIGAN COUNTIES' SHARE of the 2 per cent severance tax on crude oil and gas would be doubled, the townships' share halved by terms of a senate bill in which the house has concurred. The bill, sent to Gov. Murray D. VanWagoner, for signature or veto, provides: That one-fifth of the tax—2 per cent of value at well head—go to the general fund of the county of production, another one-fifth to the county for its roads' fund; city or township of production would receive one-fifth, instead of two-fifths as at present, and two-fifths to the state's general fund, as at present.

IDAHO

RECOMMENDATION HAS BEEN MADE that the Idaho Legislature enact measures to prevent price fixing. This suggestion was made by Atty. Gen. Bert H. Miller, who was directed by Governor Clark to investigate the rise in gasoline prices in March and April.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

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Weakening the Chain

A trade authority a few years ago was wont to point out that the "operating chain of the petroleum industry is no stronger than its weakest link." He stressed that the industry's operations were continuous, extending from the field to the filling station and when any part "got out of kilter" the entire chain was weakened.

Discussions over the past 2 weeks indicate that this observation, which goes to the fundamentals of the industry's operations, should be revived and passed on to governmental officials and other outside observers.

The industry endeavors to maintain a certain equilibrium in its operations. The integrated companies balance one phase of their activities against another with maximum overall efficiency the goal. Smaller operators have accomplished the same thing in their combined activities so that exploration, production, refining, transportation and distribution normally constitute an interlinked series which constitutes the petroleum industry.

The confusion of the past several days which has taken many of the industry's leaders to Washington shows what happens when someone starts tampering with the chain. In this instance transportation has been impaired because the Government is removing tankers from domestic to foreign-war service.

Plans are progressing to offset the tanker loss with more pipe lines. Given the time and materials this can be done but O.P.M. on Tuesday said that the metal used for pipe-line construction should be taken from other phases of the industry's operations.

Curtailment in drilling is suggested. This follows a threatened decline in exploratory work because the output of scientific instruments and materials is wanted for defense activities. Priorities have been authorized which will weaken other links in the chain.

Where does all this lead?

Consider the proposed reduction in drilling. No one denies that wells are drilled which could be classed as unnecessary, but collectively they are of little importance in total figures.

Drilling in 1940 and so far this year has been on a basis of approximately 30,000 new tests annually. This includes 6,500 dry holes, which are just as necessary as the successful completions—more so in many respects.

These dusters give essential information not obtainable in any other way. Geological data obtained from dry holes lead the way to many new fields each year. Most of our additions to reserves come as extensions to or from deeper pays in existing pools. A large percentage of failures in these extension operations is inevitable.

Then there are the 5,000 stripper and repressuring wells drilled yearly in the old producing areas east of the Mississippi River and many hundreds more west of the river. Curtail drilling on many hundreds of these old properties and their owners will be forced to abandon them permanently. This strikes at the present and future backbone of the industry's ability to produce.

Elsewhere, an impartial investigation will find few unneeded wells. Well-spacing requirements vary widely as to fields and formations and any attempt at control through peremptory rulings assures that the industry and its customers are headed for trouble later.

Operators in this country this year will have to produce at least 1,350 million barrels of crude oil. To maintain 15 years of working reserves they must find more than 400 new fields and extensions to old pools representing 1.5 billion barrels of new reserves whose whereabouts were not known at the start of the year.

There is no assurance that this can be done in the future with 2,500 new wells monthly. It is likely to take additional tests, not fewer. Representatives of the Government must realize this and not weaken the chain of the industry's operations at its most vital point.

Crude Prices Now Highest Paid in Nearly 3 Years

GENERAL adoption of the May 19-20-21 crude-price advances by purchasers in the Mid-Continent and spread of the increases to practically all producing states of the nation placed producers this week in the most favorable market position they have occupied since October 1938.

Advances averaged about 10 cents per barrel for the areas receiving higher prices. The largest advance was posted in the Texas Panhandle where Texas Co. deviated from the original raise by Phillips Petroleum Co. of 9 cents and posted an increase of 13 cents. Most other purchasers in the area moved to meet the higher posting. Crude in the Panhandle has been in strong demand for several months.

Middle western, Rocky Mountain, eastern states and California purchasers joined in the general advance of crude prices. Michigan, where a raise became effective May 2, was an exception.

The only crude-price change announced this week was an advance of 7 cents per barrel, effective May 27, for Corning grade crude in Buckeye pipe lines in the Pennsylvania district.

Mid-Continent producers are receiving $1.17 per barrel for 36° gravity crude which is still 5 cents per barrel below the posting prevailing in October, 1938, when a reduction of 20 cents was precipitated by a period of overproducing demand.

Higher postings in the Mid-Continent were announced almost simultaneously by Phillips and Shell Oil Co., Inc., and within 3 days the advances spread to Texas, Louisiana, Arkansas, New Mexico, Illinois, Indiana, Kentucky, Colorado and Wyoming.

Standard Oil Co. of California announced a general advance in its area May 23. The increases range up to 12 cents per barrel in California and apply to both northern and southern fields. The statistical position of residual fuel in California has been improved during recent weeks but the refinery price, tied closely as it is to long-term contracts, is unchanged.

Refiners in all parts of the country have adjusted product prices upward since the higher cost of crude became generally effective last week. Prices were advanced 0.5 cent per gallon in most middle western states and Pacific Coast suppliers made a similar increase throughout that territory.

California refiners, in the first 4 months of this year, have reduced stocks of heavy fuel oil 4,402,700 bbl. At the current rate of liquidation, California residual stocks should be reduced approximately 15,000,000 bbl. during remainder of the year.

Illinois basin crude is now posted at $1.37 per barrel, which is 22 cents above the quotation prevailing at the start of this year. Eastern Illinois and western Indiana crudes are selling at $1.22 against $1 at the start of the year.

Ashland Oil & Transportation Co. advanced Kentucky River and Big Sandy River production 10 cents, effective May 21, making flat prices there $1.40 and $1.32, respectively.

Texas, Illinois, Louisiana, Kansas, Oklahoma, New Mexico and Arkansas producers have received two general crude advances so far this year, including that announced last week. Postings were advanced 5 cents per barrel in late March and early April and the most recent raise of 10 cents makes a total gain of 15 cents.

All Oklahoma and Kansas schedules now carry a top posting of $1.25 per barrel for 40° gravity crude and scale downward at stages of 2 cents for each lower degree of gravity. Tables vary in the starting point and consequently there is no uniformity in the lows of gravity schedules.

North and North Central Texas scale downward at intervals of 2 cents from a top price of $1.18 for 40° gravity and above, leaving a differential of 7 cents per barrel below the Oklahoma and Kansas quotations.

West Texas and New Mexico tables scale downward from a top of $1.12 for crude of 40° gravity and above. Texas Co.'s schedule in the Panhandle starts at $1.15 for 40° and scales downward 2 cents for each lower degree, which is an advance of 13 cents over the price posted by all purchasers at the start of April.

Coastal crudes in Texas and Louisiana were advanced 10 cents per barrel throughout the gravity tables and flat-price schedules previously prevailing. There were a few exceptions caused by revision of methods of posting but details caused no important deviation from the general margin of advance.

Talco and Hawkins crudes in East Texas were advanced only 7 cents per barrel, being the only exception of any consequence to the general advance of 10 cents in Texas.

In the Rocky Mountain producing states all fields were advanced by the uniform margin of 10 cents per barrel.

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Oil Companies Win Second Victory in Damage Suits

ST. PAUL, Minn., May 26.—A decision handed down last week by the U. S. Circuit Court of Appeals for the Eighth Circuit may bring a halt or curtail the damage suits with which oil companies have been beleaguered since the Madison antitrust suit was ended.

The appellate court filed its opinion last week affirming the judgment of U. S. District Judge Gunnar H. Nordbye of Minneapolis in the case of Twin Ports Oil Co. versus Pure Oil Co. The complaint, which asked for treble damages, was based on the Madison antitrust suit which was tried more than 3 years ago against several major oil companies. The Twin Ports action was the first "jobbers suit" to be filed after the Madison verdict.

A week earlier, a suit typical of those filed against oil companies by consumers, based on the Madison case, was dismissed. This was an action brought by P. D. Carroll Trucking Co. against Shell Oil Co., Inc., et al as defendants and Atlantic Brewing Co. and two other plaintiffs against Shell et al.

Consumer and jobber suits filed shortly after the Madison case claimed treble damages under provisions of the antitrust laws.

In the Twin Ports jobber case, the Court of Appeals held that Judge Nordbye had properly granted the motion of Pure Oil Co. for an instructed verdict at the end of the plaintiff's case because the complaining company had failed to prove any damages as a result of the claimed conspiracy. The court held that "it is evident from the argument" of appellant's counsel in their brief that they found it impossible to show that an increase in the price of gasoline to appellant was not immediately reflected in a corresponding increase in the retailers' price during the years in question. Therefore, there was no loss in margins, nor in the sale of appellant's property that could be attributed to this so-called buying program.

Twin Ports Oil Co., a jobber in Duluth, Minn., sought by its action to recover treble damages for losses alleged to have been sustained by its due to violation of the antitrust law. The case was based on the government prosecution of various oil companies upon the charge of a price-fixing conspiracy consisting of a buying program for the purchase of gasoline from independent refiners in the East Texas and Mid-Continent fields, for the purpose of increasing the tank-car spot price. It was alleged in the indictment that this, in turn, had the effect of increasing the retail price of gasoline in the midwestern area.

The Circuit Court also held that the rulings in freight-rate reparation cases which permitted the recovery of an increase in price without proof of damage were not applicable to the case. The court said:

"The mere fact that the existence of a conspiracy to raise prices is established is not sufficient, ipso facto, to support a judgment for damages under the Sherman Act. This statute differs materially in its provisions from those of the Interstate Commerce Act which insure definite and specific recoveries for departures from published tariffs, and from payments of unreasonable and discriminatory freight rates. It is to be noted that here a recovery is sought for triple damages, a privilege that immediately suggests necessary definiteness in the basis of damages as attributable to the violation of the federal act."

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Pennsylvania Urged to Join Interstate Compact

BRADFORD, Pa., May 26.—Directors of the Bradford District Pennsylvania Oil Producers Association unanimously recommended that Pennsylvania join the Interstate Oil Compact, at a meeting last week to which representatives from other fields in the state were invited to attend.

State control was not recommended by the directors, who favored a law similar to that enacted recently by the New York Legislature which includes an amendment that water flooding shall be not prohibited.

It is understood that a bill will be presented to the Pennsylvania General Assembly shortly and immediate passage was urged by the directors.

The New York State law, passed late in March, provides that it shall not be operative unless Pennsylvania joins the compact.

Belief was expressed that if Pennsylvania joins the compact, West Virginia and Ohio, other states in the Pennsylvania region, and Kentucky also would enter.

Pan American Production Becomes Purchasing Unit

Pan American Production Co., effective May 1, succeeded to the rights of Pan American Pipe Line Co. to purchase crude oil from properties to which the latter company is connected. The change was made, according to a joint announcement from the two companies, both affiliates of Standard Oil Co. (Indiana), in order to simplify purchasing operations and accounting.

The only effect will be that the production company will issue checks for all runs to Pan American Pipe Line Co. for May and subsequent months.

Standard Vacuum Launches Second of Three New Tankers

BOSTON, Mass., May 24.—The tankship Stanvac Cape Town, second of three welded ships being constructed by Bethlehem Shipbuilding Co. for Petroleum Shipping Co., Ltd., marine transportation affiliate of the Socony-Vacuum Oil Co. and Standard Oil Co. of New Jersey was launched today.

First of the new boats, Stanvac Calcutte, was launched March 15. The boats are under Panamanian registry and will be used chiefly in the Near East, delivering products from Standard Vacuum Oil Co. operations in the Netherlands East Indies.

Oil Shipments Increase

PITTSBURGH, Pa., May 27.—Shipment of petroleum products on the three rivers converging here increased in April over March. The movement on the Allegheny River was 3,480,000 gal., an increase of 360,000 gal.; Monongahela River, 9,150,000 gal., an increase of 900,000 gal., and 24,780,000 gal. on the Ohio River, up 6,510,000 gal. from the previous month.

Net Income for 32 Companies Up 15.7 Per Cent In 1940 Over Preceding Year

By F. J. SANSONE
Carl H. Pforzheimer Co.

(Comparative tables by companies will be found on Pages 84-85)

AGGREGATE net income of 32 leading oil companies for the year ended December 31, 1940, totaled $412,157,371, an increase of $56,003,325 or 15.7 per cent over the total of $356,154,046 reported by these companies in 1939. The improvement, however, was not general. Fourteen of the companies reported lower earnings last year than in 1939, but their declines were more than offset by the increases shown by 18 companies.

The larger earnings for the group last year primarily reflected the unusually high level of oil company earnings in the early months of 1940 when unprecedented demand for heating oils and generally more favorable refined-product markets combined to make the period one of the most profitable first quarters in the industry's history.

Profit margins progressively narrowed as the year advanced due to the steady decline in average gasoline prices and earnings in the second and third quarters declined contraseasonally, while final quarter results were further adversely affected by the necessity of providing for increased income taxes and other year-end adjustments. Although generally larger provisions for income taxes were required because of the higher rate of tax imposed on normal corporate incomes last year, only a few oil companies were affected by the newly imposed excess-profits taxes.

The major part of the increase in total earnings of the 32 companies was accounted for by the Standard Oil Co. of New Jersey whose reported net income of $123,886,346 for 1940 represented an increase of $34,757,590 over the $89,128,756 reported in 1939. As in previous years, Standard of New Jersey was the largest earner as well as the largest member of the group in respect to total assets.

EARNINGS AND DIVIDENDS OF 32 OIL COMPANIES 1928-1940

Year—	Net income	Cash dividends	Net income distributed (per cent)
1940	$412,157,371	$231,315,557	56
1939	356,154,046	210,193,197	59
1938	341,083,662	220,897,663	65
1937	629,144,287	311,935,027	49
1936	458,820,512	251,625,745	55
1935	287,719,407	132,979,607	46
1934	182,341,148	142,716,146	78
1933	102,967,964	112,295,367	109
1932	82,144,076	168,413,161	205
1931	*73,445,526	239,083,852	
1930	335,979,116	325,696,644	92
1929	638,158,233	325,221,476	51
1928	551,971,354	261,644,292	47
Total	$4,305,195,650	$2,934,017,734	68

*Deficit.

Other companies showing large increases in net profits were Gulf Oil Corp., $22,150,277 in 1940 as compared with $15,315,781 in the preceding year; Ohio Oil Co., $8,733,164 compared with $1,492,086 in 1939; Shell Union Oil Corp., $15,564,678 in 1940 as against $11,805,712; and Standard Oil Co. of California, $22,487,586 in 1940, compared with $17,882,505 in 1939.

Percentage changes from the preceding year in the case of individual companies continued to show a wide range. Ohio Oil's increase of 485 per cent was the largest percentage gain, followed by Skelly Oil Co. with an increase of 51 per cent; Richfield Oil Corp., 47 per cent, and Gulf Oil Corp. and Amerada Corp. with increases of 45 per cent and 44 per cent respectively. Standard of New Jersey's earnings last year increased 39 per cent and those of Shell Union, 33 per cent; Barnsdall Oil Co., 27 per cent; Standard Oil of California, 26 per cent; Atlantic Refining, 24 per cent, and Phillips Petroleum Co., 18 per cent.

Sun Oil Co.'s earnings increased 14 per cent over 1939; Mid-Continent Petroleum Corp., 12 per cent, and Standard Oil of Ohio, 11 per cent. Tide Water Associated with an increase of 9 per cent; Socony-Vacuum Oil Co., and Pure Oil Co., with increases of 6 per cent and 5 per cent, respectively, and Empire Gas & Fuel Co., whose net profit last year contrasted with a loss in 1939, were other members of the group to report larger earnings in 1940 than in the preceding year.

Lower Earnings

Companies which reported lower earnings in 1940 and the percentage decline from the preceding year follows: Consolidated Oil Corp., 50 per cent; Texas Pacific Coal & Oil, 46 per cent; Plymouth Oil, 42 per cent; Continental Oil, 32 per cent; Lion Oil Refining, 30 per cent; South Penn Oil Co., 26 per cent; Seaboard Oil Co., 25 per cent; Union Oil of California, 21 per cent; Houston Oil of Texas, 14 per cent; Humble Oil & Refining, 6 per cent; Texas Corp. and Standard Oil of Kentucky, 4 per cent each; Standard Oil of Indiana, 2 per cent and Pacific Western Oil Corp. which reported a net loss in 1940 compared with a profit in 1939.

Socony-Vacuum Oil Co., ranking second after

(Continued on Page 84)

COMPOSITE INCOME ACCOUNT AND BALANCE SHEET OF 32 MAJOR OIL COMPANIES

INCOME ACCOUNT	1940	1939
Gross operating income	$4,362,568,614	$4,467,835,619
Depreciation, depletion, etc.	572,270,701	548,881,303
Net income	412,157,371	356,154,046
Cash dividends paid	231,315,557	210,193,197

ASSETS	1940	1939
Properties, plant and equipment	$10,955,801,816	$10,901,036,678
Reserves for depreciation, depletion, etc.	5,556,634,054	5,446,785,521
Net fixed assets	$5,399,167,762	$5,454,251,157
Investments and advances	1,037,887,531	924,186,425
Miscellaneous assets	187,487,680	186,669,849
Current assets:		
Cash and marketable securities	947,254,980	898,072,887
Inventories, crude and refined oil	856,404,895	861,752,112
Other current assets	576,651,115	594,470,811
Total current assets	$2,380,310,990	$2,354,295,810
Total assets	$9,004,853,963	$8,919,403,241

LIABILITIES	1940	1939
Common stock	$3,696,812,896	$3,732,250,168
Preferred stock	289,775,637	299,540,937
Funded and long-term debt	1,055,377,867	1,043,554,100
Capital surplus	937,011,979	885,853,355
Earned surplus	1,546,449,811	1,593,116,083
Miscellaneous liabilities	897,479,582	811,816,732
Current liabilities	$581,946,191	$553,271,866
Total liabilities	$9,004,853,963	$8,919,403,241

June Oil-Demand Figure Raised 30,300 Bbl. Daily

A GAIN of 30,300 bbl. in the daily demand for crude oil during June has been forecast by the Bureau of Mines. Total crude-oil demand in June is calculated at 114,900,000 bbl. by the Bureau of Mines, a daily average for the nation of 3,830,000 bbl. This figure is 3 per cent higher than the actual demand for June 1940.

A reduction of 10,500 bbl. in the daily demand from Texas was forecast for June while substantial gains were assigned to California, Oklahoma, Illinois, and Kansas.

Oklahoma was assigned the largest increase in demand for June. Requirements for the next month were estimated at 459,700 bbl. daily, an increase of 19,700 bbl. Demand for 615,300 bbl. daily in California next month represents an increase of 17,200 bbl. in the bureau's estimate over May.

The bureau said demand for Illinois crude would be 345,300 bbl. daily next month, an increase of 9,200 bbl. over May. The state is currently producing less than 325,000 bbl. daily and for several weeks the new discoveries and routine drilling have approximately balanced production against normal declines.

Demand for 220,400 bbl. daily from Kansas represents an increase of 6,500 bbl. over the May forecast and the June figure is the highest ever forecast for that state since the bureau started projecting requirements for crude into the future.

Oklahoma, Kansas, and Texas will be called upon to make up deficiencies in Illinois production where the current output is about 20,000 daily below the June demand figure.

Domestic demand for motor fuel next month was forecast at 59,900,000 bbl., an increase of 8 per cent over the abnormally high actual demand in June 1940, and an increase of almost 11 per cent over the bureau's estimated normal for that month.

Estimated daily average crude-oil demand for June as reported in barrels by the Bureau of Mines follows:

State—	June	May
Texas	1,371,700	1,382,200
California	615,300	598,100
Oklahoma	459,700	440,000
Illinois	345,300	336,100
Louisiana	319,700	320,300
Kansas	220,400	213,900
New Mexico	113,000	113,900
Wyoming	89,300	90,900
Arkansas	83,000	83,900
Pennsylvania	48,000	49,100
Michigan	38,000	40,000
Mississippi	23,300	22,900
Indiana	22,000	23,900
Montana	19,700	21,300
Kentucky	16,300	17,100
New York	14,000	14,000
West Virginia	11,000	11,100
Ohio	11,000	11,000
Colorado	5,000	5,200
Nebraska	4,300	4,800
Total	3,830,000	3,799,700

L. H. Anderson Chairman Alabama Petroleum Industries Committee

L. H. Anderson, Birmingham, Ala., was recently elected chairman of the executive committee of the Alabama Petroleum Industries Committee, succeeding C. J. Hans who has served during the past 18 months. J. B. Kelley was elected as vice chairman, and Earl M. Hearne reelected as secretary.

Mr. Anderson has been a very active member of the committee for several years and the committee unanimously honored his past record in the recent election.

In taking over the chairmanship Mr. Anderson stated that it afforded him extreme pleasure to serve the committee, the industry and the motoring public in working for justice in taxation. He pointed out that the motorist and the petroleum and automotive industries are now paying more than 14 per cent of all state, federal, and local taxes, and 46 per cent of all state-collected taxes.

Several Reasons Advanced for Scarcity of British Tankers

Reports of the past week indicated that the situation in regard to tanker facilities for the shipment of petroleum to the British Isles will necessitate the requisitioning of additional American tankers engaged in coastwise service. The U. S. Government is turning over 50 tankers for British service and it is expected that additional tankers will be required during the summer.

The scarcity of tankers for British use is explained by several developments. It is reported that 20 per cent of the Norwegian fleet has been lost and many others disabled. The Norwegian fleet consists largely of diesel-powered boats built since 1930 and chartered by the United Kingdom in January 1940.

At this time it is understood that 15 Norwegian tankers are chartered to American oil companies bringing oil from South America to North Atlantic ports. It is expected that these tankers will be withdrawn from this service, possibly before the charters are up. It is claimed that shuttle service to Canada now being used will reduce trip to the United Kingdom 20 per cent and thus partially offset losses due to sinkings.

It is reported that the British are not entirely satisfied with tankers that have been turned over to them by the Government. It is said that more clean boats are needed to take care of their requirements of two-thirds clean boats and one-third dirty. It is understood that the British will have to furnish crews for some of the boats.

A Washington report explains that the British Government has made a full report to officials at Washington regarding the tanker situation which has necessitated the requisitioning of American tankers. This will not be made public because of the war information involved. The tankers being used to store petroleum in the British Isles are those which are disabled and are awaiting repair. Tanker losses were exceptionally high in March and April because Germany concentrated their raiding activities on boats transporting oil.

DEATHS

JOE LIPSCOMB, 58, widely known in the oil business in Tulsa a number of years ago when he was chief of the land department of Wilcox Oil & Gas Co., died May 23 in Miami, Fla. He was a victim of heart disease. Mr. Lipscomb moved to Florida in 1933 and there engaged in the royalties business. He is survived by the widow and three sons.

WILBUR T. FUNK, 65, former vice president of the Carter Oil Co., died suddenly at his home in Dallas, Tex., May 26. He retired from the Carter company in 1932 after a long service period with the company and other Standard of New Jersey affiliates. He was in charge of the Carter's Rocky Mountain operations for several years, coming to Tulsa in 1925 as vice president and director of the company. He was born in Titusville, Pa., and funeral services were held there. He is survived by his son, John, who lives in California.

FRANK E. JONES, 68, Kansas and Texas operator, died May 22 at his home in Kansas City, Mo. He was chairman of the Mission Oil Co. and Trojan Oil Co., president of the Lotus Oil Co. and a director of the Southwestern Development Co. and the Gas Utility Holding Co. Roy B. Jones of Wichita Falls, Tex., president of Panhandle Refining Co., is a brother of the deceased. Other survivors are the widow, another brother, a sister, two sons and a daughter.

WALTER R. ABBOTT, president, Aetna Oil Co., Louisville, Ky., died May 18 at a Louisville hospital following an illness of 3 months. Mr. Abbott was born at Green Island, N. Y., and graduated from Rensselaer Polytechnic Institute. He joined Aetna company in 1924, as a salesman, becoming in turn assistant general manager, vice president and secretary and treasurer. In addition to being the head of Aetna, he was president of Birk City Oil Co., Owensboro, Ky. He leaves his wife and a son.

W. G. BEARD, 60, Kilgore, Tex., oil operator, died in a hospital there May 19. Death was caused by a heart ailment. The widow and a daughter survive.

CHARLES B. COON, 57, land department executive of Sinclair Prairie Oil Co., died May 25 at his home in Tulsa. Death was attributed to a fall while bathing in his home. It is not known whether a heart attack caused the fall. His widow, two daughters and a son survive.

L. E. BROCK, 59, of Abilene, Tex., a drilling contractor operating tools in the eastern part of the West Texas Permian basin, was killed in an automobile accident May 23 when his car skidded on wet pavement near Springtown, Tex. He was on a business trip to Fort Worth when the fatal accident occurred. G. N. Heinzelmann of Snyder, Tex., a passenger, was seriously injured. Survivors include his wife, three daughters and two sons.

JOHN HENDRICKSON, 63, of Degolia, Pa., engineer for the Minard Run Oil Co., was found dead near the plant of the company at Custer City on May 18. Death was caused by a heart attack. Mr. Hendrickson has resided in the Bradford area since 1919 and has been employed by the Minard Run Oil Co. for more than 20 years. He leaves his widow and three daughters.

J. H. GILLETTE, specification and instrumentation engineer, and an employe of the Arthur G. McKee & Co., Cleveland, Ohio, for the past 15 years, passed away suddenly on Wednesday, May 21. He maintained his home at Cleveland.

THE MARKETS*

CRUDE OIL: Producers in the Mid-Continent and Southwest states are now receiving the highest price for crude paid since the latter part of October 1938 as a result of general adoption of the May 19-21 advances of 10 cents per barrel. Corning grade crude in Buckeye lines, passed up in last week's advances, was raised 7 cents May 27 by South Penn Oil Co. Crude remains tight in the Mid-Continent and demand may grow more acute when full effect of the tanker deficiency forces eastern buyers to inland sources of supply.

REFINERY PRODUCTS: Advances of 0.5 cent per gallon on all classes of gasoline deliveries were made in the middle western states and on the Pacific Coast to support higher crude prices. Mid-Continent refiners raised the low side of the gasoline market ⅛ cent and terminal quotations along the Atlantic seaboard were advanced 0.5 to 1 cent per gallon.

TANK-WAGON AND POSTED DEALER: Standard Oil Co. (Indiana) and Standard Oil Co. of California made their advances of 0.5 cent per gallon apply to tank-wagon customers and to dealers. Scattered advances were made at two points by Standard Oil Co. of Louisiana. Higher refinery prices are expected to force an advance in the distributor market where compensating adjustments have not been made.

FINANCIAL: Oil securities were among the most active in last week's trading. Average of 30 representative stocks for the week ended May 24: High, 25.37; low, 24.27; close, 24.70. Week ended May 17: High, 25.09; low, 24.18; close, 24.53.

*Detailed information in Market Section.

Watching WASHINGTON

By HENRY D. RALPH

Eastern companies agree not to raise prices unless basic cost conditions change. . . . Defense authorities consider additional pipe lines. . . . Push legislation to clear way for completion of southeastern lines

WASHINGTON, D. C., May 27.—Agreement between representatives of leading oil companies operating in the New England and mid-Atlantic areas and officials of the Office of Price Administration and Civilian Supply that there shall be no further substantial increases in gasoline prices unless basic cost conditions change and the lack of tanker tonnage results in curtailment of civilian supply was reached Friday at a conference called by Leon Henderson, administrator of O.P.A.C.S.

The meeting, called to discuss price trends for gasoline, industrial fuel oil and lubricants, followed expressions of concern by O.P.A.C.S. officials regarding recent price increases for such products along the eastern seaboard.

All refiners and marketers present agreed to the request made by O.P.A.C.S. representatives not to institute further increases of a substantial character on gasoline prices without prior consultation with Mr. Henderson.

Industry representatives insisted that all increases to date have been caused by the cleaning up of distress gasoline stocks and increases in costs of operation.

Pointing to the recent increase in the price of gasoline and fuel oil in the New York area following the withdrawal of 25 tankers from the domestic trade in connection with the aid-to-Britain program, the committee stated that a further increase can be expected when an additional 25 tankers are withdrawn as a result of a further request on the part of the Maritime Commission.

Following the meeting, it was announced that further conferences will be held in the near future with oil producers and buyers to consider the situation in that sector of the industry.

The conference was conducted by Dr. J. K. Galbraith, head of the Price Division, and M. Quinn Shaughnessy, price executive in charge of the newly formed Petroleum Section of the Price Division.

While O.P.A.C.S. officials refused to divulge the names of the oil companies represented, it was learned that 22 firms participated.

Defense Heads View Pipe Lines

Construction of additional pipe lines to keep the Atlantic Coast states supplied with oil in spite of the diversion of tankers to the British service is currently the chief preoccupation of the oil industry and government officials concerned with defense activities.

Because of the secrecy invoked in the name of national defense it is difficult to sift facts from rumors about the many conferences, discussions and proposals occurring almost daily. There are many problems to be solved—where will the new lines run, who will build them, who will use them, who will pay for them, what lines do defense officials want built, what is the attitude of the Department of Justice, is still available, and many more.

About the only general agreements so far seems to be that tankers left in coastal service and rail shipments will not be adequate to supply the demand and that the oil industry can and will build the needed pipe lines if given proper government cooperation.

Meanwhile, congressional action to force the railroads in the southeastern states to permit the crossing of their rights-of-way by pipe lines in the interests of the national-defense program was begun last week with the introduction of a bill by Rep. William P. Cole, Jr., of Maryland, which would permit the pipe-line companies to obtain rights-of-way through an action in the federal District Courts under the right of eminent domain.

Mr. Cole introduced the measure following the release of a letter from President Roosevelt to Speaker Sam Rayburn, of Texas urging that the House give "early and earnest" consideration to the Cole proposal. At the same time Mr. Cole issued a report to the House on the pipe-line situation and the results of the recent investigation conducted by the special petroleum subcommittee of the House interstate and foreign commerce committee at the request of the president.

Provisions of Cole Bill

The Cole bill, which would give the president sweeping powers to authorize construction of pipe lines, contains the following major provisions:

1. The president may provide for the construction, extension or completion of any line by any department or agency of the Government if he finds such line in the interest of national defense.

2. The agency building any such pipe lines may acquire any land required for rights-of-way or for operation of the lines as may be needed by exercise of the right of eminent domain.

3. Any private concern constructing lines in connection with national defense may acquire needed land by right of eminent domain, such proceedings to be instituted in the federal District Court in the district in which the land is located.

4. The president is authorized to advance federal funds for the construction of lines under such terms and conditions as he sees fit. Lines having been constructed wholly or in part with federal funds to be operated and maintained subject to terms and conditions prescribed by the president, who may dispose of or lease such lines to any private operator under any terms he deems proper.

5. The president is given complete authority to suspend any provisions of the Natural Gas Act or the Interstate Commerce Act in connection with any line construction of which was made partly or wholly with federal funds as to any duty or liability under either of the two laws to any such extent as he may deem advisable for national-defense purposes.

Authority granted the president to construct or aid in the construction of pipe lines would expire under the terms of the bill on June 30, 1943.

Southeastern Lines Controversy

In its report to Congress the subcommittee pointed out that considerable attention was given during the hearings conducted recently to the controversy which resulted when two companies endeavored to build gasoline pipe lines in the southeastern states. The bill introduced by Mr. Cole does not have that particular situation solely in mind.

"It is aimed at the broader national picture and is designed to give the support of the federal Government to pipe-line construction which is necessary for the national defense," the report explained. "The gasoline lines in the southeastern states, when completed, may be able to deliver up to 60,000 bbl. of gasoline daily into the Atlantic Coast area, but even that accomplishment would leave nearly 250,000 additional barrels of oil for the transportation of which pipe-line facilities must be provided.

"The projects which have been proposed in this connection are crude-oil lines of large capacity, designed to transport crude from the producing fields of the Mid-Continent and Southwest to the principal refining centers of the Atlantic Coast. In all discussions which have been had as to the laying of these lines, it has been evident that the strong support of the federal Government is necessary in obtaining rights-of-way, priorities on material equipment, and related matters."

The proposed locations of the two southeastern pipe lines, one running from Port St. Joe, Fla., to a point on the Tennessee River near Chattanooga, and the other from a point on the Mississippi River near Baton Rouge, La., to Greensboro, N. C., the committee pointed out, tie in very definitely with the needs of the defense program.

"The subcommittee recommends," the report continued, "that the undertaking be given prompt consideration by the governmental authorities entrusted with the legislation to the end that they might be an integral part of a great system of additional pipe-line transportation contemplated in the legislation recommended and most urgently needed at this time."

Analyzing the present lack of transportation facilities to the East Coast, the committee declared that the present situation is "shameful."

"A lot of it, we believe," the report stated, "can be attributed to the fact that responsible governmental agencies and legislative bodies have been too unwilling to face boldly the facts before them in a way their country demanded."

Get highest value from crude

Every day of the five weeks ended April 5, 1941, American motorists and American exporters bought 103,000 barrels more gasoline than they bought in the same weeks in 1940

The figures are, 1,636,000 barrels a day for the 1941 period against 1,533,000 barrels in 1940, according to the Chicago Journal of Commerce

When consumption went so high in March, where do you think it will go at the height of the motoring season?

And who will cash in on it to the best advantage?

Why, Universal licensees will

Dubbscracking and U. O. P. catalytic polymerization make the highest yield of high octane gasoline from any kind of crude you run

And other processes available to all refiners, through Universal, make special products never before produced commercially from petroleum —products vital for national defense

Universal processes realize the highest values from every barrel of crude oil

Aren't Universal licensees sitting pretty?

Universal Oil Products Co
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International

Australia . .

Two Companies Engage In Search for Petroleum

TWO of the world's largest oil companies are engaged in a search for petroleum in Australia, one concern working in Queensland and the other in Western Australia, Interior Minister Hattil Spencer Foil has announced.

Other companies, including an American firm, are spending large sums in a similar search in New Guinea while Australian concerns are boring in both Western Australia and Victoria.

The federal government was facilitating the operation of the large companies with respect to legislation passed by the states, but it was also safeguarding Australian rights, Senator Foil added.

The efforts to discover free petroleum are coinciding with the production of oil from shale and plans to produce power alcohol from primary products.

Latest development is that the Power Alcohol Committee has submitted a report to the government recommending a long-range program aiming at production of 50,000,000 gal. annually.

This alcohol would be blended with gasoline for motor fuel. The committee recommended the fullest use to be made of existing plants to double present output of 3,000,000 or 4,000,000 gal.

RATE of petroleum production from the oil-shale fields of the Glen Davis district in New South Wales has reached 50,000 bbl. annually and the objective has been fixed at 250,000 bbl. Gasoline which has been refined from the oil has given excellent results when tested in automobiles, it was said, and after the completion of a 30-mile pipe line to a refinery, the gasoline will be distributed.

Australia's normal consumption of gasoline amounts to 10,000,000 bbl. annually. Officials said that therefore a new plant would make practically no difference in the import requirements, but the augmentation of the gasoline supply would provide a valuable supplement to the government's emergency stores.

Colombia . .

Government Sells Share Of Barco Royalty Oil

THE Ministry of Mines and Petroleum has contracted for the sale of its royalty oil produced from the Barco concession in the eastern part of the country. The contract was approved by the council of ministers and then passed to the council of state for legal approval. Prices obtained under terms of the contract range from $1.28 to $1.40 per barrel, taking into consideration a deduction of 8 cents per barrel in United States currency from the f.o.b. port price, likewise the transportation charge from the field to the port amounting to about 46 cents per barrel. The government has the option of accepting delivery on its royalty oil either at the port, in which case it is 6 per cent of the gross, or at the field where it is 10 per cent of the output.

Operations have been drastically curtailed on the Barco concession and part of the personnel of Colombian Petroleum Co., the operating affiliate of Socony-Vacuum Oil Co., Inc., and Texas Co. has been returned to the United States. Substantial reductions have been made by both parent companies in their estimates of reserves and both have written down capital investments in Colombia. Several possible structures in the Barco concession remain to be explored, but wells in the Petrolea field, where drilling was intensified before completion of the pipe line to Covenas, have shown disappointing results under commercial producing conditions.

Still another cause for curtailment of the development on the Barco concession is the closure of European markets.

The 250-mile line from the Barco to the western Colombian port of Covenas is operating at only a fraction of its capacity of 40,000 bbl. daily. The line has been in service about 1½ years.

Argentina . .

Refinery Near Salta Supplies Local Needs

THE new refinery constructed by Yacimientos Petroliferos Fiscales, the government oil-field agency, 3½ miles from Salta in the Province of Salta, is now in complete operation.

The plant in the northern part of Argentina is situated on a site of 74 acres. Capacity is reported by the United States commercial attache at Buenos Aires to be 1,900 bbl. daily. The plant is meeting all projected yields, including nearly 1,000 bbl. of gasoline daily which is sufficient to meet requirements in the vicinity. The zone supplied by Y.P.F.'s new plant at Salta includes Salta, Jujuy, Tucuman and part of Santiago del Estero, the territories of Los Andes, the Chaco and Formosa.

Y.P.F.'s crude production during January and February totaled 1,921,600 bbl., an increase of 401,400 bbl. over the same month of 1940, representing a gain of 21.83 per cent. All of the increase is attributed to the new producing fields in the Province of Mendoza in the western part of Argentina. Production by private companies in Argentina continued its downward trend in January during which their output aggregated about 625,850 bbl., compared to about 637,175 bbl. in the same month a year ago.

Mexico . .

Petroleos Mexicanos Is Starting Reynosa Test

PETROLEOS MEXICANOS, the government's petroleum agency, is starting a wildcat operation in the northern part of Mexico, west of Reynosa, across the Rio Grande from McAllen, Tex. The test will be the first drilled in northern Mexico in more than 2 years.

Venezuela . .

Creole's Production Gaining Momentum

A SUBSTANTIAL increase in production from properties of Creole Petroleum Corp. has developed since the start of this year. This information was disclosed by C. H. Lieb, president of Creole, at the annual stockholders meeting in New York last week.

The present oil production is around 98,000 bbl. daily. From beginning of this year through the middle of May, Creole's production averaged 91,330 bbl. daily, which was about 3 per cent less than for the same period in 1940.

Creole's refinery at Carapito, operated by the wholly owned subsidiary, Standard Oil Co. of Venezuela, currently is processing about 35,000 bbl. daily. Principal markets for the Carapito refinery are the United States, South America, and the Caribbean area.

Great Britain is again drawing substantial amounts of petroleum from South America, Mr. Lieb reported. He said that an increase in shipments to Canada also had developed.

Two rigs are operating on properties jointly held by Creole with Pantepec. Creole completed its 20-well obligation with Pantepec late last year.

T. R. Armstrong, vice president of Creole, reported to stockholders that wells in the El Roble field, an interest in which was acquired in the drilling agreement with Pantepec, cost about $200,000 each.

"We hope in time," said Mr. Armstrong, "to reduce that cost, but that will have to come when we get to know more about the field."

Mr. Lieb added that the wells in the El Roble field average at least 1,000 bbl. daily and said that the four completed wells are now producing 4,500 bbl. per day.

"We think that there is a nice reserve there and that once we get sufficiently established, where the drilling costs can be lowered, that the cost of production should be reasonable," Mr. Lieb concluded.

COMBINED production of the Standard Oil Co. of Venezuela and Lago Petroleum Corp. declined 22,417 bbl. to a daily average of 251,567 bbl. during the month of March. At the same time combined exports rose 948,218 bbl. to 8,075,431 bbl. for the month. Standard Oil Co. of Venezuela exports in March were 2,702,337 bbl. and those of Lago Petroleum Corp., 5,373,094 bbl.

A summary of the daily average production of these companies for the month of March follows:

Area—	S.O.V.	Lago	Total
Lake	7,432	158,154	165,586
Other western fields	2,314	.....	2,314
Eastern Venezuela	77,133	6,534	83,667
Total	86,879	164,688	251,567

A record of well completions during March in which these companies are interested follows:

Area—	Wells	Average initial (bbl./day)	Total depth (ft.)
Lake	1	1,386	5,602
Jusepin	1	576	4,997
San Joaquin	2	2,289	6,065

Refinery Expansion

Standard of New Jersey Reviews Construction in Annual Statement

Standard Oil Co. (New Jersey) in its annual statement released last week outlined construction work of the company and some of its subsidiaries in connection with the manufacture of petroleum products for national defense. The report stated that various operating units of the company are now spending over $5,000,000 annually for research and development. The results are reflected not only in the greatly improved methods for the discovery, production and refining of oil, but also in new oil-chemical developments. In regard to alcohols, the report stated Standard Alcohol Co. operated its existing plant at maximum capacity throughout 1940 and has completed plans for increased production.

Regarding rubber, the report stated ". . . We were in contact throughout the year with government authorities and the rubber industry in working out a government-sponsored program for the production of rubber of the buna-S type (suitable for tires). The Standard Oil Co. of Louisiana is now producing about 2,000 tons per annum of perbunan rubber, a synthetic product used for specialties, . . . We have produced butyl rubber in the laboratory and expect to erect at Baton Rouge the first unit for its commercial production."

Development of the fluid catalyst process, and its first application to the catalytic cracking of distillates to produce improved motor fuels, was pointed out. Three plants of this type, each capable of charging 12,000 bbl. daily, were said to be under construction. Three commercial hydroforming units, a catalytic process similar to hydrogenation, were licensed to other refiners and the first of the plants is in successful operation.

Substantial investments were also made both in the United States and foreign plants for facilities for the production of 100-octane aviation gasoline, which is used almost exclusively by military planes. Productive capacity during the year was increased more than 70 per cent. World wide, the company has now approximately 20 per cent of the installed capacity for production of this grade. In connection with such facilities installed in the Standard-Vacuum refinery in Sumatra, the first commercial isomerization unit was completed and put into operation. This unit produces a material that is required for the manufacture of a blending stock used in the production of the above-mentioned grade of aviation gasoline.

The War Department has awarded a contract to the Humble Oil & Refining Co., an affiliate, for the construction and operation for its account of a $12,000,000 plant for the production of synthetic toluol from petroleum, using a process of the Standard Oil Development Co.

Arkansas-North Louisiana Refiners Increasing Runs

SHREVEPORT, La.—In April refiners in the North Louisiana-Arkansas group ran more crude to their stills and produced more gasoline than in April last year, and, with gasoline shipments exceeding production, there was a further draft on stocks during the month, according to report of the Ark-La-Tex division of Western Petroleum Refiners Association.

The comparative figures are crude runs to stills in April 1941, 1,908,410 bbl. (daily average 63,614 bbl.), in April 1940, 1,642,926 bbl. (daily average 54,764 bbl.) an increase of 16.16 per cent. Gasoline production this April 792,538 bbl., compared with 680,190 bbl. last year, an increase of 16.51 per cent. Gasoline shipments this year 810,536 bbl., compared with 725,968 bbl. last year, an increase of 11.65 per cent. Gasoline stocks April 30 this year totaled 504,893 bbl., compared with 576,588 bbl. on hand a year ago, a decrease of 12.43 per cent.

Daily average gasoline shipments during the first 4 months of 1941 were 25,842 bbl., compared with 23,377 bbl. in 1940. On this basis gasoline stocks on hand at the end of the month represented 19.5 days' supply, compared with 24.6 days' supply on hand a year ago.

Paluxy Soon to Place New Mississippi Plant on Stream

SHREVEPORT, La.—Paluxy Asphalt Co., Dallas, Tex., is nearing completion of its new refinery at Crupp, Miss., about 5 miles from Yazoo City, and plans to have the plant on stream by the middle of June. The 3,500-bbl. plant will contain cracking equipment and a complete line of asphalt products will be made. An ethyl-blending plant will also be incorporated in the plant's operation. Crude will be obtained from the Tinsley field, to which the laying of a 4-in. pipe line was completed this week. A long-term contract has been signed with Union Producing Co.

The Paluxy company, which formerly operated plants at Talco, Tex., and Mankins, Tex., is headed by E. Constantin, Jr. A. A. Spencer is sales manager and H. J. Toups, superintendent.

Remodeling Work Started On Artesia Refinery

ARTESIA, N. M.—Remodeling of the former Midwest Refining Co. plant (later Tyreco) here is under way by New Mexico Asphalt & Refining Co. The 2,000-bbl. plant, which has been operated only intermittently since its construction some 3 years ago, was recently acquired by the company from Black, Sivalls & Bryson, Inc., and Bethlehem Supply Co., who foreclosed the property last year. When placed in operation the plant will obtain part of its crude supply from the Getty pool and the balance from the Artesia area.

Natural Gas

Investigation of Detroit Gas Rates Ordered by F.P.C.

WASHINGTON, D. C.—Investigation into rates charged for natural gas in the Detroit area was ordered late last week by the Federal Power Commission.

A complaint is on file by the city of Detroit and the county of Wayne, alleging excessive rates are charged by Panhandle Eastern Pipe Line Co. to Michigan Consolidated Gas Co., which distributes gas to the public in the Detroit area. The commission, on its own motion, instituted the investigation of Panhandle and Michigan Gas Transmission Corp.

The investigation will determine the status of these companies under the Natural Gas Act, whether rates charged by them for natural gas in interstate commerce are excessive, unjust, unreasonable, or discriminatory, and what rates and charges for natural gas in the Detroit area would be just and reasonable.

A supervising commissioner will be selected from the commission to conduct a staff investigation of the charges, the results of which will be submitted to the full commission for a decision as to whether public hearings should be held.

Natural Gasoline

Liquefied Petroleum Gas Manufacturers in California Increased Distribution Last Year 50 Per Cent Above Volume Handled in 1939

An increase of 50 per cent in the 1940 sales of liquefied petroleum gases by California suppliers over 1939, bringing the total distribution to 72,841,000 gal. was reported last week in a survey compiled by Edward T. Knudsen, petroleum economics division, U. S. Bureau of Mines. Total distribution in 1940 was more than twice the 35,140,000 gal. sold just 2 years ago in 1938.

Current data relating to liquefied petroleum gas demand indicate that during the first 3 months of 1941 the upward trend in sales continued, but at the reduced rate of approximately 18 per cent over the record distribution attained in 1940. The current demand data also include company usage, but nevertheless serve to indicate the trend of consumer requirements.

The increase of 50 per cent, or 24,274,000 gal. in sales in 1940 appears to reflect principally the general advance in economic activity, Mr. Knudsen concluded in his report. There is considerable evidence, he reported, that sales to farms, particularly for use in tractors or other power purposes, provided a substantial share of the increase.

As in previous years, the report continued, internal-combustion engine fuel was the largest item of liquefied petroleum gas consumption. Such sales now constitute well over half the total distribution of California marketers.

"Bottled gas" sales for domestic use gained substantially during 1940 and amounted to 22,419,000 gal., an increase of 7,364,000 gal.

Data contained in the report do not include (because they are not sold as such) liquefied gases used directly by the producers for fuel, polymerization, solvents, dewaxing, blending with gasoline or as a raw material in chemical plants which are operated by producers.

Approximately 87 per cent of total California liquefied petroleum gas distributed is handled in bulk shipments and the remaining 17 per cent by cylinders, drums and in export.

LIQUEFIED PETROLEUM GAS SALES BY CALIFORNIA MARKETERS—1940 AND 1939

(Thousands of gallons)

Uses—	Propane		Propane-butane		Butane		Total	
	1940	1939	1940	1939	1940	1939	1940	1939
Domestic	8,293	7,343	9,570	5,180	4,556	2,532	22,419	15,055
Gas manufacturing	....	....	2,774	2,478	5,524	4,772	8,298	7,250
Industrial fuel	510	362	1,560	1,258	186	28	2,256	1,648
Internal-combustion engine fuel	285	186	30,930	18,771	7,920	5,091	39,135	24,048
All other uses	....	....	.....	3	489	493	489	496
Total	9,088	7,891	44,834	27,690	18,675	12,916	72,597	48,497
Segregation of above total by method of transportation—								
Bulk shipments	1,011	346	43,996	27,476	18,640	12,876	63,647	40,698
Cylinder and drums	8,077	7,545	838	214	35	40	8,950	7,799
Exports	89	70	155	....	....	....	244	70
Total sales	9,177	7,961	44,989	27,690	18,675	12,916	72,841	48,567

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Smooth outside surface and even welds speed wrapping when you use Republic Line Pipe

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Read "The Pipe of Progress"—the story of Republic's far-reaching developments in the manufacture of better pipe —and what they mean to men in the field. Sent on request.

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MORE STEEL

Many times during the past decade observations were made and often appeared in print to the effect that the steel production facilities of this country were being over-expanded.

Republic was not deterred by these prophecies — but went ahead with an extensive program of plant expansion — enlarging blast furnace, electric furnace and rolling mill capacities — building a loyal force of men in plants and offices.

Now, when all American industries need more steel than ever before, Republic's men and machines are setting new records for steel production, — doing their utmost to help manufacturers of every type of product by supplying more and better *steel — first line of national defense.*

R. J. Wysor
PRESIDENT

LINE PIPE—NORMALIZED CASING AND TUBING

Huge Expansion Planned for Crude-Oil Pipe-Line Facilities

(Continued from Page 10)

lines it would be difficult to average more than a mile per day in traversing good country. Over difficult terrain they may be fortunate to lay half a mile per day. With 20 gangs working it would probably take more than 6 months to complete. The efficiency of modern pipe-line-construction methods makes it possible for contracting organizations to complete work in accordance with schedules in laying lines under all conditions.

The cost of the 24-in. crude-oil line has been estimated as $65,000,000. If it is assumed that estimates for the cost of both lines may be nearly $130,000,000, it is of interest to compare the cost of this project with orders for tankers placed by the U. S. Maritime Commission with Sun Shipbuilding & Drydock Co. for 72 single-screw, high-speed, defense-type tankers; 36 are of 8,350 gross tons and 36 are of 10,750 gross tons. The estimated cost of $180,000,000 may be exceeded as shipbuilding costs rise as war conditions continue. The maximum capacity of these tankers while operating the 2,200-mile course from Texas City, Tex., to Bayway, N. J., might be estimated as approaching that of the two pipe lines. Construction of the pipe lines will be much faster since it seems possible to complete them in considerably less than a year if the federal Government gives the project full support in obtaining right-of-way, pipe, equipment, power facilities, and in eliminating labor and legal difficulties which have done more to impede pipe-line construction in the last 2 years than difficulties encountered in rough terrain.

Under wartime conditions the pipe lines can be operated advantageously as they serve as arteries located in the interior of the country. Shipments through pipe lines reduce the burden on the Navy during periods of hostilities. Since pipe lines are buried underground they are less vulnerable to attack than are tankers on the ocean.

Concern has been expressed as to the economic value of these lines when peace conditions are restored. It has been mentioned that these lines would be available to transmit natural gas originating on the Texas Gulf Coast.

Competitive Position

It is generally believed that pipe lines cannot compete with tankers under normal conditions. In reviewing conditions which have come into existence as the result of advances made in pipe-line practices it may be seen that the situation for a modern pipe-line system operating under a single management for long distances may not be so adverse as has been supposed. In this connection it must be recognized that great improvements in operating efficiency can be achieved by the use of large-diameter pipe. Hitherto crude-oil pipe-line systems have had scarcely any experience with lines larger than 16 and 18-in.

This project is regarded as a cooperative undertaking of major companies which will provide a common-carrier system available for other shippers. Twelve of the companies which have been mentioned as interested in the project because they either have refineries and distribution in the East or depend on products from Gulf Coast plants are: Socony-Vacuum Oil Co., Inc., Tide Water Associated Oil Co., Consolidated Oil Corp., Standard Oil Co. of New Jersey, Texas Co., Atlantic Refining Co., Pan American Oil Co., Shell Oil Co., Inc., Cities Service Oil Co., Gulf Oil Corp., and Pure Oil Co.

Jesse Jones, federal-loan administrator, has said that R.F.C. might finance or build the lines contemplated by defense authorities for carrying crude oil and refined products from the Southwest to the East Coast. He said that he did not know whether the lines would be built by private companies or by the Government. Conferences are being held in Washington this week by representatives of the major companies, concerned with this project, for the purpose of arranging for pipe, other equipment, and means for procuring right-of-way. On May 20 a bill was introduced in Congress by Chairman William P. Cole to give the federal Government power to authorize the acquisition of right-of-way for pipe lines needed for national defense by condemnation proceedings.

Comparative Costs

Comparison can be made between rates now in effect for other long pipe-line hauls. When these are examined along with current pipe-line cost figures it is possible to get an indication of margin on which the proposed project may operate. The only published pipe-line rate between East Texas and Bayway was authorized May 13 for the Standard of New Jersey's shipments through a roundabout hookup of pipe lines which winds through Louisiana, Arkansas, Oklahoma, and Missouri before going eastward. This tariff is 67½ cents. Allowing for depreciation at the rate of 3 per cent per year and considering the operating costs of other lines it is reasonable to use a cost figure for the new project of 2.17 mills per ton-mile which is equivalent to the more convenient figure of $0.0003 per barrel-mile. On this basis the cost of transporting a distance of 1,450 miles (approximately the distance from East Texas to Bayway) would be 43½ cents. If the present published rate is used this would give a profit of 24 cents per barrel. If the project is regarded as primarily an emergency measure with an uncertain future economic value, a policy may be adopted to amortize the line over a 4 or 5-year period during which the original investment would be reduced to one-third.

Under present conditions most East Texas oil going to Bayway is moved to Gulf Coast ports through competing pipe lines of approximately the same length. Prevailing rates are 5 cents gathering charge and 12½ cents trunk-line charge, totaling 17½ cents; companies using this trunk-line rate include Texas, Magnolia, Gulf and Humble. Shell and Pan American have had their trunk-line rates reduced to 10 cents. With present tanker rates of 55 cents per barrel, East Texas oil is now delivered at Bayway by tanker with transportation charges of 70 to 72 cents. With tanker rates of about 25 cents per barrel prevailing under normal conditions before the present war the total shipping cost for sending East Texas oil by sea to Bayway was about 40 cents. In comparing overland pipe-line costs with pipe-line tanker costs under normal conditions, some consideration should be given to the reduced costs which may be possible because of the greater efficiency of large-diameter pipe which is proposed for the project being planned.

Rates for some of the longest crude-oil shipments in the country are as follows: Lost Soldier, Parco, Casper, Wyoming, to East Chicago, 1,257 miles, trunk-line rate 38 cents or $0.000302 per barrel-mile (I.C.C. tariff effective November 20, 1940); Lance Creek, Wyoming, to Whiting, Ind., 1,120 miles (average), trunk-line rate 34½ cents or $0.000308 per barrel-mile. (I.C.C. No. 107); Houston, Tex., to Whiting, Ind., 1,200 miles, trunk-line rate, 40 cents or $0.00033. It was necessary to have a low tariff on Wyoming crude to enable operators to compete with other crudes.

The most important crude-oil pipe-line project completed this year is Pan American Pipe Line Co.'s 200-mile 12-in. trunk line from East Texas to Sinco, Tex., near Houston. This line together with an extensive gathering system was laid during last winter. The line was built as a result of a decision in a lawsuit which ordered Pan American to lay its own Gulf Coast outlet. The decision was handed down by the Supreme Court of New York State (Appellate Division) in the case of Jacob Blaustein and other minority stockholders of Pan American against Pan American Petroleum & Transport Co., Standard Oil Co. (Indiana), and Standard Oil Co. of New Jersey.

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Twenty Eastern Refineries Depend on Tankers for Oil

(Continued from Page 13)

able Bureau of Mines reports.

Details of coastwise movement by months and products are shown in Table 3. Crude oil and gasoline make up the large bulk of cargoes handled by coastwise tankers, although the combined movement of distillate fuels and residual oil turn sharply upward in the winter months as the data show.

Figures on the movement of foreign crude oil to northeastern refineries, shown in Tables 1 and 2, indicate that increases in imports this year have been discharged at other refining centers. Foreign crude deliveries to northeastern refineries show a small reduction for the first quarter of this year compared to the average for 1940.

TABLE 4—REFINERIES DEPENDENT ENTIRELY OR PARTIALLY ON MARINE TRANSPORTATION FOR CRUDE

Company and plant location—	Crude oil cap.	Cracking cap.
Maryland		
Continental Oil Co., Baltimore	7,500	3,500
Pan American Ref. Co., Baltimore	8,000	.....
Standard Oil Co. of N. J., Baltimore	27,000	48,000
Total	42,500	51,050
Massachusetts		
Cities Service Oil Co. (Pa.), E. Braintree	20,000	18,000
Colonial Beacon Oil Co., Everett	33,200	37,700
Total	53,200	55,700
New Jersey		
Barber Asphalt Corp., Barber	13,500	3,000
Cities Service Oil Co. (Pa.) (Petty Island), Camden	20,000	20,000
Cities Service Oil Co. (Pa.), Linden	12,000	.....
Socony-Vacuum Oil Co., Paulsboro	25,200	2,900
Standard Oil Co. of N. J., New Jersey Works (Bayonne, Linden, Jersey City)	124,000	105,000
Tide Water Associated Oil Co., Bayonne	57,000	21,000
Total	251,700	151,900
New York		
Gulf Oil Corp., Staten Island	13,000	.....
Socony-Vacuum Oil Co., Long Island City	19,000	5,200
Socony-Vacuum Oil Co., Buffalo	14,500	7,200
Total	46,500	12,400
Other New York	25,200	8,000
Pennsylvania		
Atlantic Ref. Co., Philadelphia	90,000	25,300
Gulf Oil Corp., Philadelphia	40,000	12,000
Sinclair Ref. Co., Marcus Hook	45,000	30,000
Sun Oil Co., Marcus Hook	90,000	38,500
Total	265,000	105,800
Other Pennsylvania	69,700	23,900
Rhode Island		
Socony-Vacuum Oil Co., Inc., Riverside	9,000	1,650
Texas Co., Providence	3,500	.....
Total	12,500	1,650

PROGRAMS AND MEETINGS

Michigan Association Will Meet In Grand Rapids June 4

The Oil and Gas Association of Michigan has scheduled its annual spring membership get together for June 4 at Cascade Hills Country Club, Grand Rapids. Arrangements are being made by W. B. Pardoe, H. M. McClure, and C. A. Smith, Jr. Golf will be the chief daytime pastime and there will be a dinner at 7 p.m. with a program of speeches by representatives of the Independent Petroleum Association of America.

Illinois Oil Men Will Gather At Robinson, June 7

A record attendance is expected when the ninth annual petroleum conference of the Illinois-Indiana Petroleum Association convenes in Robinson, Ill., on Saturday, June 7. A program designed to appeal to the oil industry from a national as well as a local aspect has been arranged.

C. J. Haas, Illinois production superintendent, Adams Oil & Gas Co., Centralia, will preside at the morning session.

Lee Mulvihill, executive secretary of the association, will deliver the address of welcome.

A. I. Levorsen, geologist of Tulsa, will deliver a paper "Geology and Oil Discovery."

"Transportation of Crude Oil by Pipe Line" will be discussed by C. H. Gompf, treasurer, Illinois Pipe Line Co., Findlay, Ohio.

The morning program will be concluded with a sound picture, "Controlling Nature's Fury," under the direction of C. P. Parsons, vice president, Halliburton Oil Well Cementing Co., Duncan, Okla.

The afternoon program will be presided over by E. G. Robinson, Centralia, manager eastern production area, Shell Oil Co., Inc.

Sam O'Neal, Washington correspondent, St. Louis Star-Times, St. Louis, Mo., will talk on "The Washington Situation."

"Horizontal Wells Are All in Pay and Flow by Gravity" will be presented by Leo Ranney, petroleum engineer of McConnellsville, Ohio, and Morro Bay, Calif.

H. Kennedy McCook, chief of information, Priorities Division, O.P.M., Washington, D. C., will discuss "The Development of the Present Preference Rating System."

The evening will be given over to the annual stag dinner with Dr. Gus W. Dyer, professor of economics, Vanderbilt University, Nashville, Tenn., as the guest speaker.

Entertainment and the oil men's annual golf tournament will be the other features of the program.

May Meeting of Southern California Section A.I.M.E. Outstanding

The May meeting of the Southern California section of the A.I.M.E. held in Los Angeles proved to be one of the most outstanding meetings of the section. William T. Foran, who very recently returned from Arabia after 5 years' work for the Near East Development Co., delivered an interesting lecture. The general geology and structure of the area was first described and illustrated by maps depicting the changes throughout geologic history.

Operation of the pipe line to Haifa was described and the sabotage practiced by Nazi subsidized natives. These people would go out at night, uncover a section of pipe, build a fire around it with native brush and after heating and softening the line would fire rifle bullets through it causing miniature but serious and frequent geysers. This pipe line is always patrolled and airplanes with repair crews and welders are on duty at each end. Upon discovery of these leaks, the planes and welding crews fly to the spot and are able to effect the necessary repairs within 2 hours. Crude-oil reserves of Iran, Iraq, and Arabia were roughly estimated by Mr. Foran as in excess of four billion barrels and an outlet of approximately 150,000 bbl. daily although only a limited amount was going through the line to the Mediterranean Sea. The pipe-line terminal at Tripoli is inactive as no oil is moving out through this segment of the line.

Standard Oil Co. of California sent H. A. Smith down from San Francisco for the monthly meeting to show a reel of colored motion pictures depicting a trip to Arabia. Starting from New York and visiting prewar London, Belgium, and other European cities, the voyage continued to Bahrein. Desert life, cities, trips to the Pyramids and then to the company's plants and refineries were shown in detail. V. H. Wilhelm, of Texas Co., and now a lieutenant commander in the Navy, presided as chairman of the evening session, and W. D. Abel, secretary-treasurer of the section, was also present. Richard H. Pence, who is also on active service with the Navy, was also present although his present duties prevent him from taking care of publicity which is now being done by Milt W. Lewis.

Pacific Coast Gas Association Planning Strong Program for Portland Meeting

The Pacific Coast Gas Association is planning an especially strong and useful program for the association's annual Northwest Conference to be held in Portland, Ore., June 9-10. The program is being tailored to fit the interests of the Northwest gas industry and will include both round-table discussions on vital sales procedures and talks by nationally known authorities. Speakers from eastern points will include W. E. Derwent, vice president, George D. Roper Corp., and president of the Association of Gas Appliance and Equipment Manufacturers; George S. Jones, president, Servel, and John Bogan, sales promotion manager for C. P. gas ranges.

Garrett Named A.P.I. Chairman for Ark-La-Tex Chapter

R. O. Garrett, Arkansas Fuel Oil Co., was elected chairman of the Ark-La-Tex chapter of the American Petroleum Institute, at the dinner meeting of the group last week. E. L. Rawlins, Union Producing Co., and W. B. Powers, Magnolia Petroleum Co., were named vice chairmen, while George Weber, The Oil and Gas Journal, was named secretary-treasurer.

Two-year members of the advisory committee elected were: A. M. Crowell, of the Arkansas Oil and Gas Commission; W. E. Schoeneck, Ohio Oil Co.; J. T. Goodman, Gulf Oil Corp.; C. Mangold, Dowell, Inc. One-year members are J. J. Formmer, Ohio Oil Co.; O. O. Basley, Oil Well Supply Co.; R. A. Howe, Carter Oil Co., and Lon Abney, Texas Co.

CALENDAR OF EVENTS

May

NATIONAL OIL SCOUTS AND LAND MEN'S ASSOCIATION, annual convention, Dallas, Tex., May 29-31.

June

SOCIETY OF AUTOMOTIVE ENGINEERS, summer meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., June 1-6.

OIL MEN'S GOLF TOURNAMENT AND BARBECUE, seventh annual, Stockdale Country Club, Bakersfield, Calif., June 7.

ILLINOIS-INDIANA PETROLEUM ASSOCIATION, ninth annual petroleum conference, Robinson, Ill., June 7.

LIQUEFIED PETROLEUM GAS ASSOCIATION, INC., Pacific Coast section, Fairmont Hotel, San Francisco, Calif., June 9-10.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, Oil and Gas Power Division, Kansas City, Mo., June 11-14.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, annual meeting of Petroleum Division, Kansas City, Mo., June 16-20.

PENNSYLVANIA GRADE CRUDE OIL ASSOCIATION, annual meeting, Bradford, Pa., June 19-20.

ARKANSAS PETROLEUM INDUSTRY, Twentieth Anniversary Celebration, El Dodaro, Ark., June 19-20.

KENTUCKY OIL AND GAS ASSOCIATION, mid-year meeting, Lexington, Ky., June 20-21.

LITTLE INTERNATIONAL OIL SHOW, second annual exposition, Odessa, Tex., June 21-22.

AMERICAN SOCIETY FOR TESTING MATERIALS, forty-fourth annual meeting, Palmer House, Chicago, June 23-27.

September

AMERICAN CHEMICAL SOCIETY, Atlantic City, N. J., September 8-12.

NATIONAL PETROLEUM ASSOCIATION, thirty-ninth annual meeting, Hotel Traymore, Atlantic City, N. J., September 17-19.

SOCIETY OF AUTOMOTIVE ENGINEERS, national tractor meeting, Schroeder Hotel, Milwaukee, Wis., September 25-26.

NATIONAL LUBRICATING GREASE INSTITUTE, ninth annual meeting, Stevens Hotel, Chicago, September 29-30.

October

TEXAS MID-CONTINENT OIL AND GAS ASSOCIATION, twenty-second annual convention, Beaumont, Tex., October 9-11.

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, Petroleum Division, Dallas, Tex., October 16-18.

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, Southern California Section, Los Angeles, Calif., October 29-30.

SOCIETY OF AUTOMOTIVE ENGINEERS, national aircraft production meeting, Biltmore Hotel, Los Angeles, Calif., October 30-November 1.

CALIFORNIA NATURAL GASOLINE ASSOCIATION, Los Angeles, Calif., October 31.

November

AMERICAN PETROLEUM INSTITUTE, twenty-second annual meeting, San Francisco, Calif., November 3-7.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, Pacific section, Los Angeles, Calif., November 6-7.

December

NEW MEXICO OIL AND GAS ASSOCIATION, Artesia, N. M., December 3.

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS, Southeastern district meeting, New Orleans, La., December 3-5.

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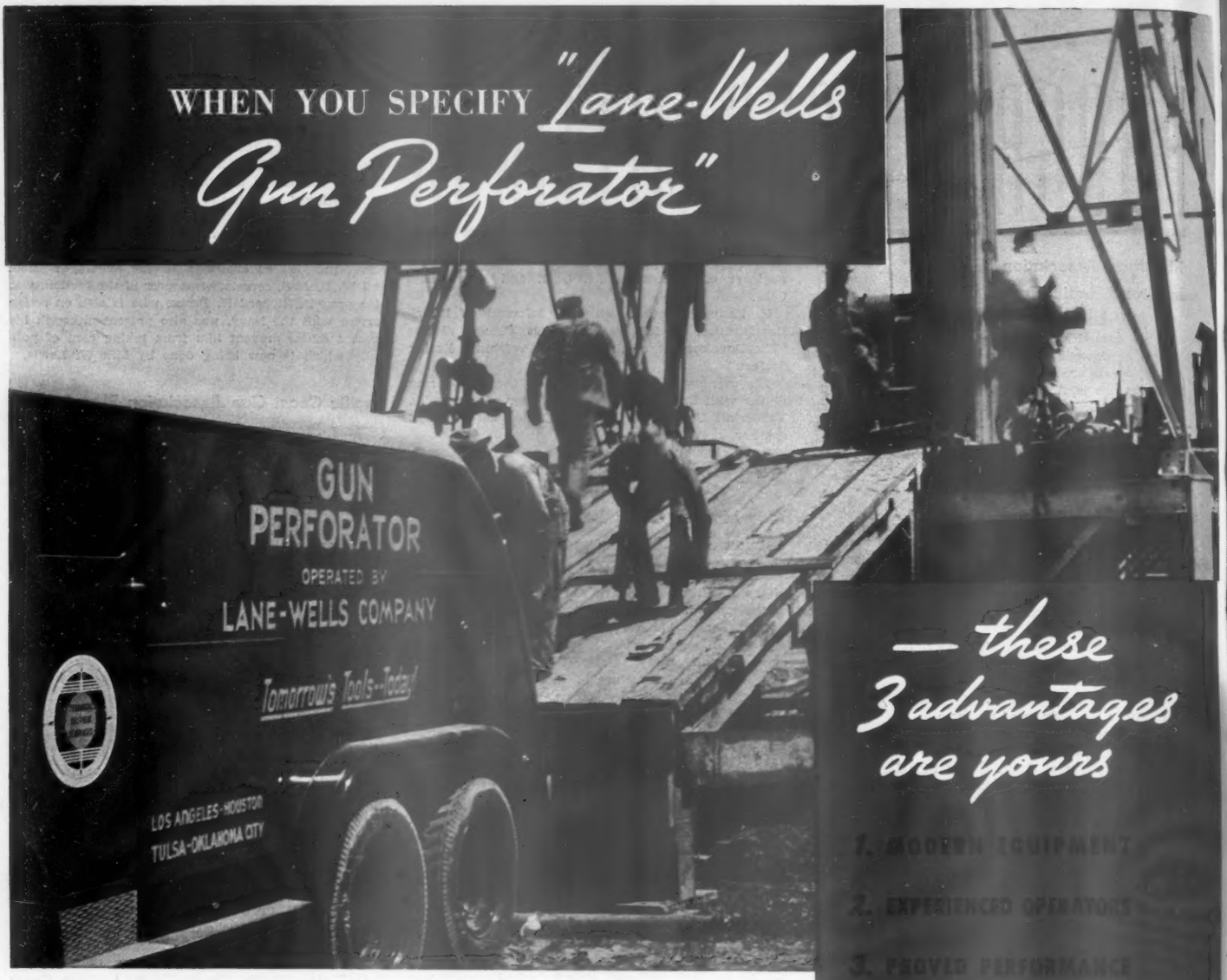

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Individually driven rotary tables have been used for several years on steam rigs and recently the same method has been adopted on mechanically and electrically driven rigs. This installation is on a 4,500-ft. well and includes a six-cylinder internal-combustion engine with a torque converter for driving the table

ENGINEERING & OPERATION

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MAY 29, 1941

DEEP MICHIGAN TEST USES NEW MUD SYSTEM AND TREATMENT
By Harry F. Simons ..... Page 35

At the Gulf Refining Co. 1 Bateson in Michigan, the problem of mud control is complicated by high gas pressures, a large salt section and hydrogen sulfide gas. The mud system used is featured by circulating, storing and treating tanks, a degasser and if necessary the mud can be passed through an oil-gas separator.

CONTINENTAL ADOPTS DELAYED COKING AT OKLAHOMA PLANT
By W. T. Ziegenhain ..... Page 42

To provide the most desirable feed for its Cross cracking units, Continental Oil Co. recently installed a "delayed coking" operation at its Ponca City, Okla., refinery. Only few changes were necessary to convert a Dubbs unit to this service, using practically all of the original installation.

FIGHTING FIRES WITH CARBON DIOXIDE EXTINGUISHERS
By P. W. Eberhardt ..... Page 48

Carbon dioxide is one of the fastest extinguishing agents employed to combat fires in burning liquids or gases. Here the various types of carbon dioxide extinguishers available, including portable, wheel-mounted and built-in systems, are discussed.

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Deep Michigan Test Uses New Mud System and Treatment

By HARRY F. SIMONS

A NEW mud treatment plus an improved mud system has been the most important factor in controlling the deepest well in Michigan, the Gulf Refining Co. 1 Bateson in Bay County. Principal features of the mud system are the tanks for circulating, storing and treating the mud and a degasser; in addition the mud can be passed through an oil-gas separator in case it becomes necessary to do so. The mud treatment which has allowed the operation to be successfully pursued incorporates a new compound which imparts a colloidal property to the drilling fluid in the presence of salt water. The drilling fluid being used at the present time was made from admixtures and salt water instead of the usual fresh water.

The problem of mud control on the Bateson well is not a simple one as there are three complicating factors: High gas pressures, a large salt section and salt-water-bearing sands, and hydrogen sulfide gas. In addition, there are several sands which will allow a thick filter cake to be built up in case the filtration qualities of the mud are not properly maintained; also a washed-out section which requires that a reasonably high viscosity be maintained for the mud stream to carry the cuttings out of the hole.

Above: Mixing tank in foreground and storage tanks in the background. The hoses connect to cementing trucks: 4-in. connection at right is from the cement hopper mixer; connection at left of mixing tank is from the hopper installed in front of the mud shed

Right: Vibrating screen, degasser, wood flume and 130-bbl. tank used for one circulating pit. Note workman using mud hydrometer to determine weight of the mud

Below: Separator through which the mud can be passed in case the gas content gets too high for the degasser to handle it. Ordinarily, the separator is bypassed

When the rotary rig was installed to drill the Bateson well deeper, the regular earthen pits were dug alongside the derrick. These included the settling and circulating pit and two large reserve pits. Mud used for fishing out the junk in the hole was made by mixing 650 sacks of fire clay, 139 sacks of Aquagel and 480 sacks of Baroid. As water was finally used to wash the 8⅝-in. pipe (set at 3,129 ft.) loose, more material had to be added to bring the mud up to almost 12 lb. per gal. and 36 to 38 seconds A.P.I. viscosity. This new mud included 368 sacks of fire clay, 256 sacks of Aquagel, 986 sacks of Baroid and 62 sacks of Zeogel.

Salt water was encountered less than 300 ft. under the 9⅝-in. pipe, which was run to protect the old producing formation and set at 3,597 ft. More material had to be added to hold the mud at the 11.4-lb.-per-gal. weight and 36 viscosity needed to control the salt water. A little beyond 5,000 ft., 460 lb. of tannic acid and 400 lb. of caustic soda were added to deflocculate the mud.

Overcoming Blowout

At 7,368 ft. the well attempted to blow out and more material was added to the mud to bring the weight to 14 lb. per gal. This was the weight of the mud going in the hole but coming out the mud weighed approximately 1 lb. per gal. less. For a time the mud was passed through a separator to degas it. This gas cutting continued until it became necessary to set the drill pipe on bottom and unscrew the kelly so the master gate could be closed to control the well. Total depth reached before this was necessary was 7,776 ft.

While the drill pipe was being fished from the hole, the new mud system was installed. The earthen pits were seen to be unsatisfactory as ground water (the region becomes almost a swamp during the thawing season) could get into the pits and dilute the mud. It was also apparent that the tanks would allow the mud to be controlled much easier and an accurate treatment designed.

The accompanying diagram shows the system

Right: View from above of storage tanks, wood flume from vibrating screen and degasser. Note black froth on left storage tank which is full of mud ready to be reclaimed. Hopper for mixing mud in storage tank is on stairway landing between tanks and storage house

which was eventually developed. The flow line coming from the well head has a bypass so the mud can be directed through the oil and gas separator in case it becomes necessary to do so.

Flow of Mud

Normally, the mud comes from the well head through the 7-in. flow line, passes over the vibrating screen where the cuttings are removed and then enters the degasser. This consists of a steel chamber 12 ft. by 4 ft. by 2 ft. which has a 4-ft. 10-in. air chamber on top of it; a steam jet on top of the air chamber provides the necessary vacuum to pull the gas out of the mud. In addition, a small steam engine drives a set of paddles which churn the mud, liberating part of the gas and exposing a greater surface to the vacuum. The vibrating screen and the degasser set on top of an open 130-bbl. tank used for a pit.

Mud coming from the degasser is directed to the end of the tank nearest the well head, flows the length of this tank and then passes into a similar steel tank, set at right angles, from which it can be picked up again by the circulating pump. Both of these tanks are equipped with four 1-in.

(Continued on Page 38)

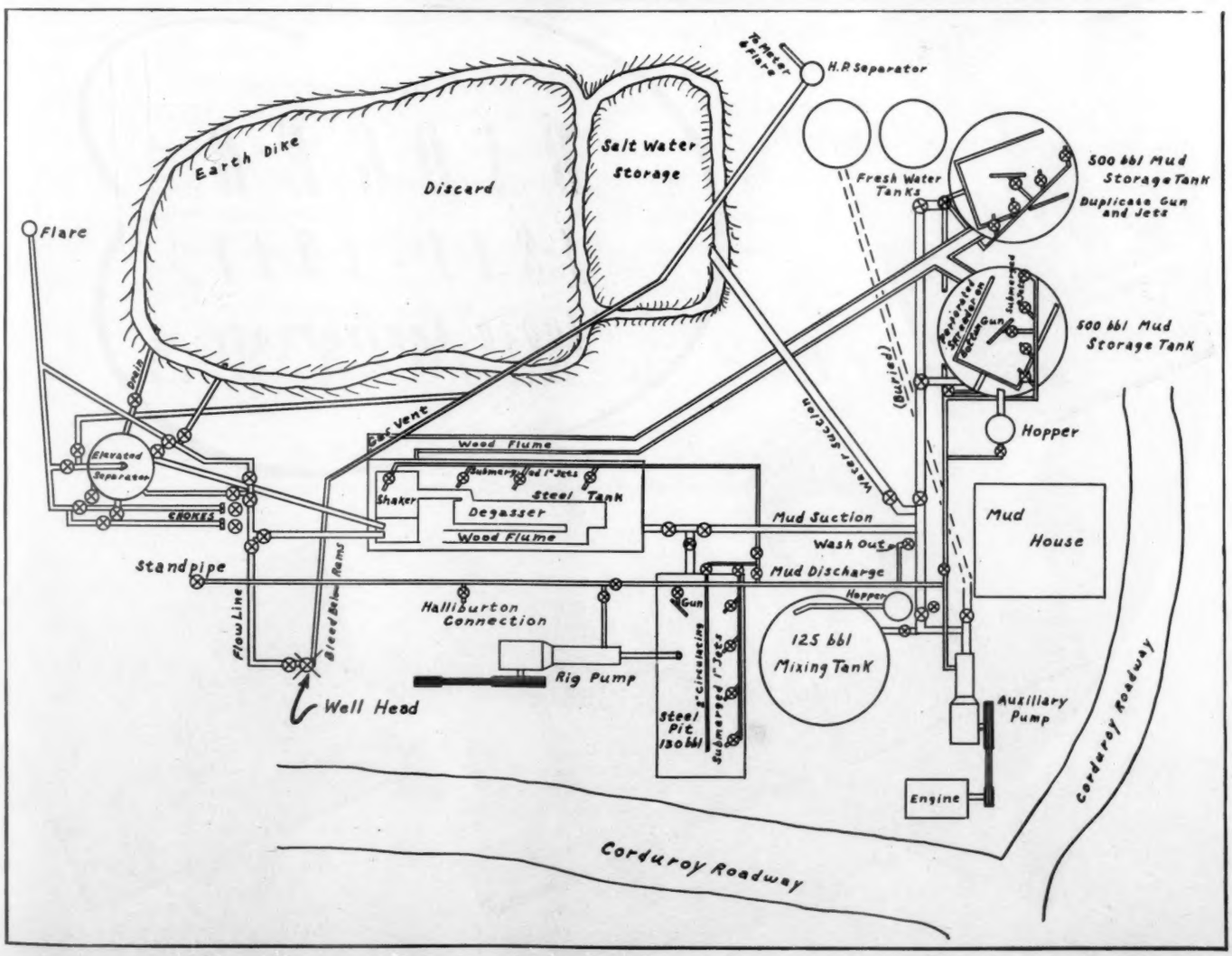
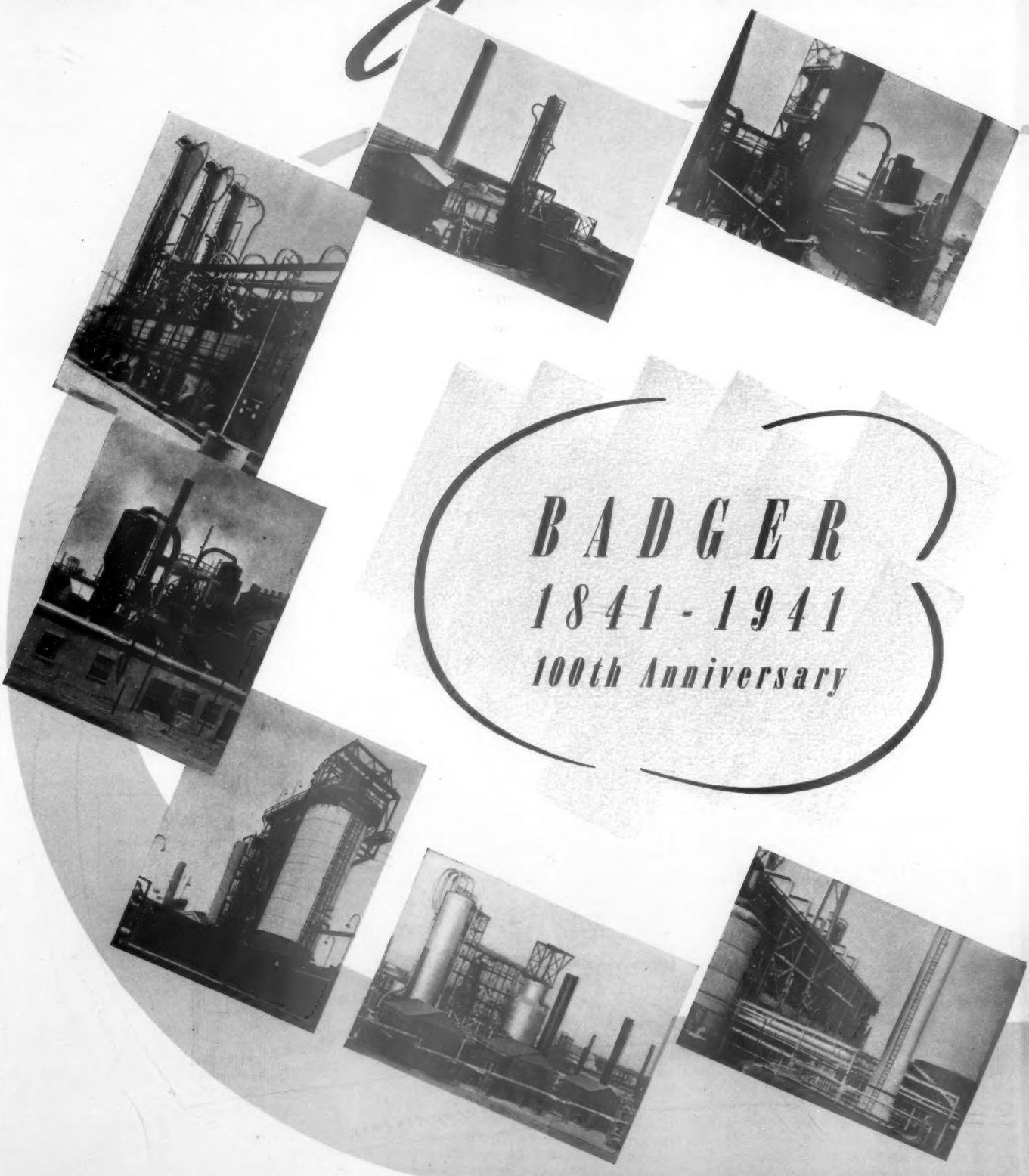


Diagram of mud system, showing location of tanks, lines, flumes and oil-gas separator. In addition to the two hoppers shown, a third was available for mixing mud

...100 Years OF



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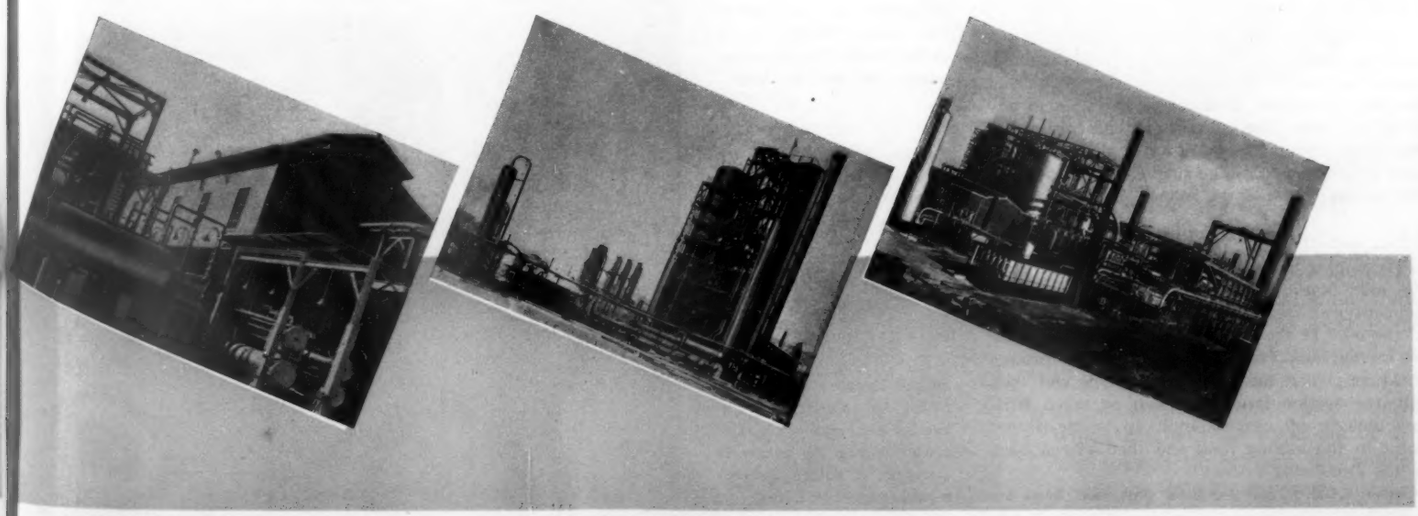


submerged jets which can be used for stirring the mud so the weighting material does not have a chance to settle, and to knock out any traces of gas. The suction tank is also equipped with a mud gun for stirring while fresh material is being added from the mixing tank.

A wooden flume from the vibrating screen to the 500-bbl. storage tanks allows mud not in first class condition to be taken from the circulating system for reclaiming. These tanks are equipped with spreaders on the bottom, four 1-in. submerged jets for "boiling" the mud and overhead mud guns to aid in the stirring of the mud. These tanks are connected to the mixing pump suction and discharge by a manifold. A hopper-type mixer is located so it discharges into either or both of these storage tanks.

Discharges of both the 15-in. by 6¾-in. rig circulating pump and the 14-in. by 6¼-in. mixing pump are manifolded together, thus making it possible to transfer mud out of any tank to any point desired. The storage tanks, fresh-water tanks, circulating tanks, salt-water pit and mixing tank are connected by the suction manifold which has valves located at the proper points.

Mixing Equipment

The mixing tank and mixing pump set between the mud house and the rig circulating tank. A hopper-type mixer is conveniently located in front of the door of the mud house; it discharges into the mixing tank. Fresh mud can be mixed through the hopper and into the mixing tank and then into the suction tank. Mud can be taken from any tank in the system, built up to the proper point in the mixing tank and then placed back in the circulating system.

After 6,432 ft. of the drill pipe had been recovered from the hole, it was decided to directionally drill past the remaining 1,344 ft. A 14-lb.-per-gal. mud with 37.5 viscosity was mixed and 1,100 bbl. pumped into the hole before circulation was gained. Approximately 750 bbl. of this mud was required to fill the lower 1,000 ft. of hole. The drill pipe became stuck at 6,380 ft. and a thick filter cake on the Sylvania sand at 4,400 ft. also gave trouble. The pipe was freed by pumping clear salt water into the hole and washing the thick filter cake off the walls.

The salt water coming from the well had a weight of 10.2 lb. per gal. which would be more than sufficient to withstand the gas pressure of 3,200 lb. (Pressure exerted by 100-ft. column of 10.2-lb.-per-gal. salt water is 53.1 lb. per sq. in.) However, caves in the hole were known to be present as the fillup from cement pumped in for a plug was much less than expected. The slow velocity of the salt water through the cavey section allowed the cuttings to fall back down the hole and create a source of trouble.

Above: Mixing tank, suction circulating tank and cementing trucks which stayed at the location for emergency mixing and mud handling

Right: Hopper for mixing mud, 14-in. slush pump for mixing, and mud shed. The discharge from the hopper is elevated, a rather unusual feature

Tried Salt Water

The next batch of mud mixed used salt water as a fluid medium. The mud consisted of the salt water, Zeogel (a salt-water admixture for suspending weighting material), Baroid (barytes for weighting the mud) and Impermex (a colloidal material which is not adversely affected by salt water but which is actually preserved by it). The completed batch of 1,500 bbl. of 14-lb.-per-gal. mud included the salt water, 3,690 sacks of Baroid, 58 sacks of Zeogel and 55 sacks of Impermex. This mud was tested every 15 minutes for weight and funnel viscosity and was analyzed every 8 hours. The laboratory is equipped with a Stormer viscosimeter, Beckman pH meter, filter press and incidental equipment.

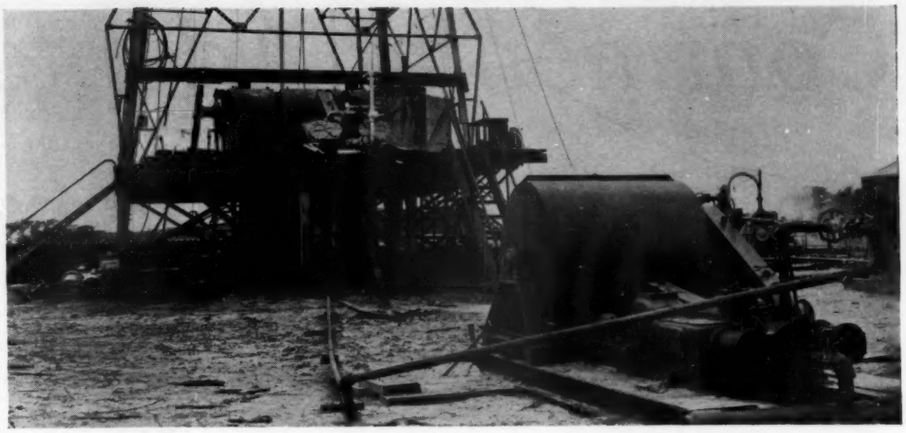
After using this mud 3 days, it showed a weight of 13.9 lb. per gal., funnel viscosity of 44 seconds, Stormer viscosity of 27.5 seconds, with water loss of 58 cc. in 30 minutes, filter cake of 9/32 in. and a pH of 5.73. Sodium chloride by weight was 24.8 per cent. Several days later, after adding some makeup mud, the weight was increased slightly and the viscosity decreased 3 seconds on the funnel test and 2 centipoises on the Stormer viscosimeter. Previously, muds mixed with fresh water showed a high viscosity due to flocculation and a high water loss, approximately twice that of the salt-water mud. Considerable difficulty is experienced in getting muds which will have a very low water loss in the presence of so much weighting material.

The low pH was possibly due to the sulfide gas with which the mud came in contact. In an effort to cure this, 20 lb. of caustic soda per barrel of mud was added to the mud. This was put in at the rate of 60 lb. per round trip of the mud which required about 3 hours. Another trip down the hole and back up was allowed for mixing between caustic treatments. The pH preceding the addition of one batch of caustic was 5.7 and at the conclusion was 6.1.

Since the material for this article was gathered, the old total depth of 7,776 ft. has been passed by the whipstocked hole. Gas pressure increased as drilling progressed and it has been necessary to use 17.5-lb.-per-gal. mud to control the well.

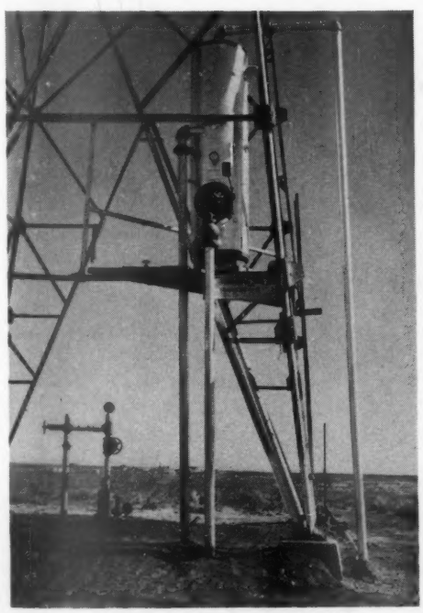
Wire-Line Core Reel Placed on Ground

Reduction in the amount of substructure required has been effected by one drilling contractor operating in the Aransas, Texas, field. The reel used to spool the wire rope needed for running a retractable core barrel is skid-mounted along with the 10 by 10-in. driving engine and placed on the ground about 75 ft. away from the derrick, immediately behind the regular hoist engine. This makes it easy to rig up and conserves floor space. The lead line from the reel goes up outside the derrick.



Operating Ideas

Derrick Girts Used as Base for Separator



In the Grayburg field of Eddy County, New Mexico, one operator mounts the oil-gas separator on the lower girts of the pumping derrick, thereby eliminating the need for a separate platform. Planks are laid across connecting girts in one corner to form a base for the separator, which is placed as close as possible to the leg section in order to reduce the strain on the girts. The small-size separators used permit the operator to use this method of elevating them, whereas normally this would not be possible.

Pumping Unit Mounted on Wheels

One operator in a Texas field designed the portable pumping unit shown in the accompanying photograph for taking potentials on new producers and for temporary pumping service prior to the setting of jacks connected to central powers. The pumping unit and multicylinder gas engine are mounted on a skid, on one end of which pneumatic-tired wheels are placed. A trailer hitch is placed on other end so that the unit can be easily towed to new locations and quickly placed in operation. To complete the portable unit, demountable guard rails are placed in sockets welded to the base.

Winch on Butane Truck Aids Moving of Tank

Butane trucks used for delivery of fuel to drilling rigs need special equipment for unloading and for getting the truck out when it gets stuck. The truck in the accompanying photo is equipped with a winch which can be used to pull the skid-mounted butane tank around or which can pull the truck out of a ditch. The takeoff for driving the winch also drives the unloading pump.

Continental Adopts Delayed Coking at Oklahoma Plant

By W. T. ZIEGENHAIN

IN its 26,000-bbl. refinery located at Ponca City, Okla., the Continental Oil Co. recently instituted a "delayed coking" operation to provide the most desirable feed for its Cross cracking units.

The decision to revamp its cracking equipment was prompted by the desire to step up the octane value of its normal gasoline production. When originally faced with this economic problem the management had to decide whether to make major replacements among the original Dubbs cracking chambers or adopt a delayed-coking operation. It weighed all factors and in its particular case chose the latter.

Under the new plan practically all of the original Dubbs installation in being used, the original reaction chambers now serving as coke drums and the original towers continuing to serve as fractionators. The assembly has been augmented by a fuel-oil flash tower and a stabilizer column. Of course, major revisions had to be made in the oil flow through the original furnaces and numerous revisions were made in the piping. And to accommodate the new type of operation, a large cracking furnace was built to handle the distillate from the coking operation.

New Cracking Furnace

This new cracking furnace is designed to release 125,000,000 B.t.u. and is equipped with an air preheater which absorbs the energy of the waste gases to such a high degree that a temperature of 600° F. is maintained at the stack inlet. The furnace is fired from two opposing sides. The major share of the heating is accomplished in the wall tubes or radiant sections while a dual bank of roof tubes receives the oil to be heated and absorbs convectional heat. The furnace is equipped with automatic draft adjustments which further help to account for its high efficiency as evidenced by the relatively low-stack temperature.

Delayed Coking

Returning to a discussion of the delayed-coking operation, it is interesting to note how few changes were necessary in order to convert the original Dubbs units to this service. Reference to the flow chart will identify each major item as part of the original cracking installation.

Delayed coking is not a new term but in its modern version represents a distinct improvement over the older procedure of reducing the crude residuum in batch stills to recover the gas oil as feed for cracking stills. Both, however, recognize time as well as temperature as factors in liberating gas oil from the heavy residuum and in causing the deposition of coke during this procedure.

The Continental operation provides for rapidly heating the oil and then the hot oil is allowed to remain in a relatively large body for a long enough time to fully accomplish the distillate separation and provisions are made for the removal of any resulting coke.

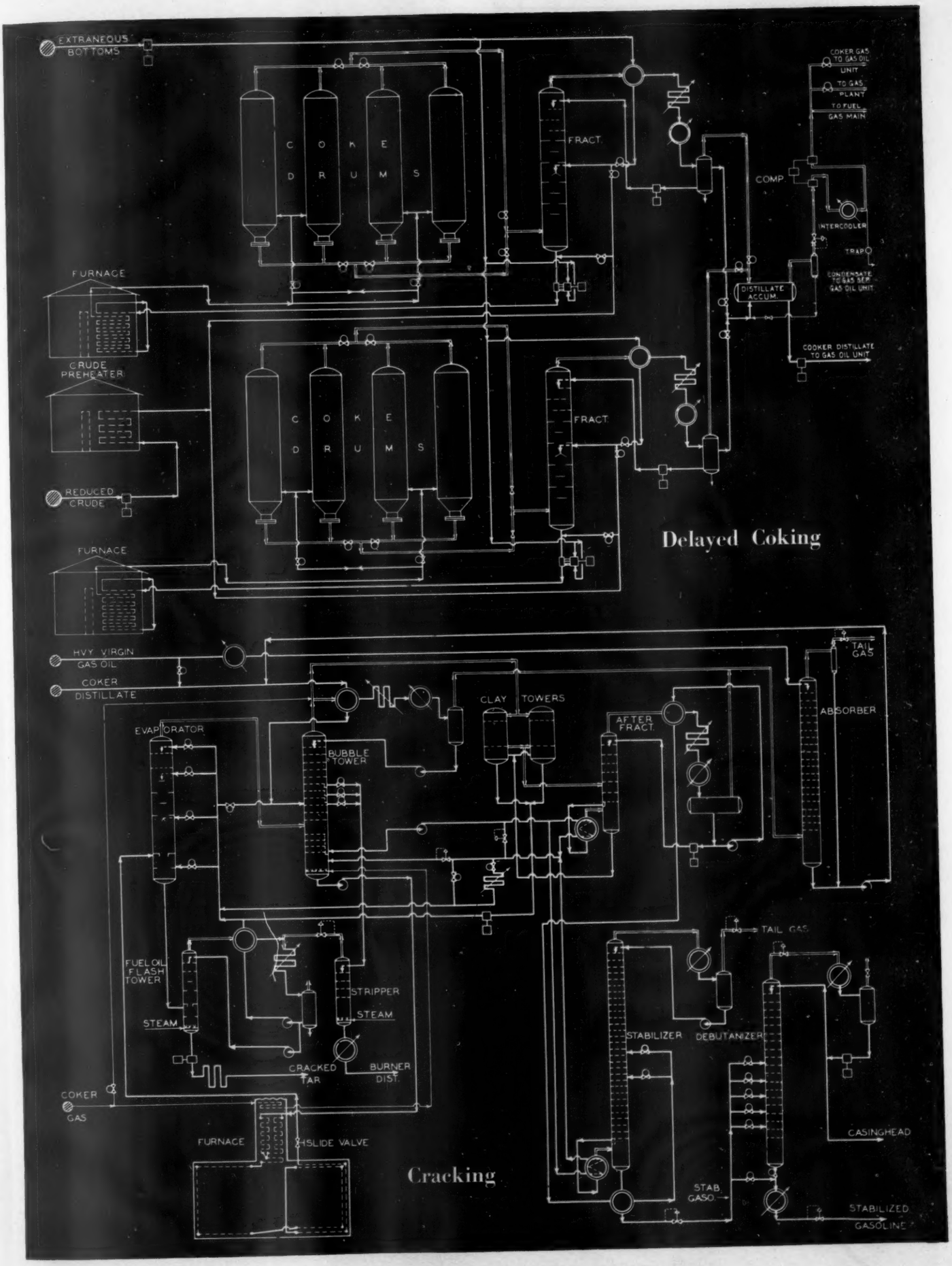
In this installation, the eight original chambers are paired off to provide alternate service. Two pairs are assigned to each of two reconditioned furnaces. The operation of each group of four is identical, each receiving the same quality of charging stock and the products from each going into the same receivers. The accompanying flow sheet shows the raw charge coming from two sources, one a reduced crude and the other is "extraneous bottoms."

The typical reduced crude has a gravity of 22 and 70 per cent of it distills at 730° F. The oil is essentially a Kansas crude residuum.

A typical "extraneous bottoms" is 26 gravity, has an initial of about 370° F. and 70 per cent of it distills over at 740° F. This material comes from many sources, as the name implies, and is pumped to the two coking units at the rate of

Right: General view of cracking equipment, including some delayed-coking drums of the left and stabilizer unit at right. Below: Part of delayed-coking equipment in the Continental Oil Co. refinery

Flow diagrams on opposite page show processing of reduced crude through revamped cracking unit (upper) to make suitable overhead charging stock for expanded cracking equipment (lower).


EXTRANEOUS BOTTOMS
COKE DRUMS
FRACT.
COMP.
COKER GAS TO GAS OIL UNIT
TO GAS PLANT
TO FUEL GAS MAIN
INTERCOOLER
TRAP
CONDENSATE TO GAS MFR. GAS OIL UNIT
DISTILLATE ACCUM.
COOKER DISTILLATE TO GAS OIL UNIT
FURNACE
CRUDE PREHEATER
REDUCED CRUDE
Delayed Coking
HVY. VIRGIN GAS OIL
COKER DISTILLATE
EVAPORATOR
BUBBLE TOWER
CLAY TOWERS
AFTER FRACT.
ABSORBER
TAIL GAS
FUEL OIL FLASH TOWER
STEAM
STRIPPER
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The hard working youngster at the right wants *all the traces* of his soda. But he can't get it out of the bottom of the glass with that spoon. He illustrates a vexing—*but avoidable*—problem in gas purification. To remove *all the traces* of H_2S, *you must have the right means.* And the *right means,* that combines 100% desulphurization with many unequalled economies, is the famous GIRBOTOL PROCESS.

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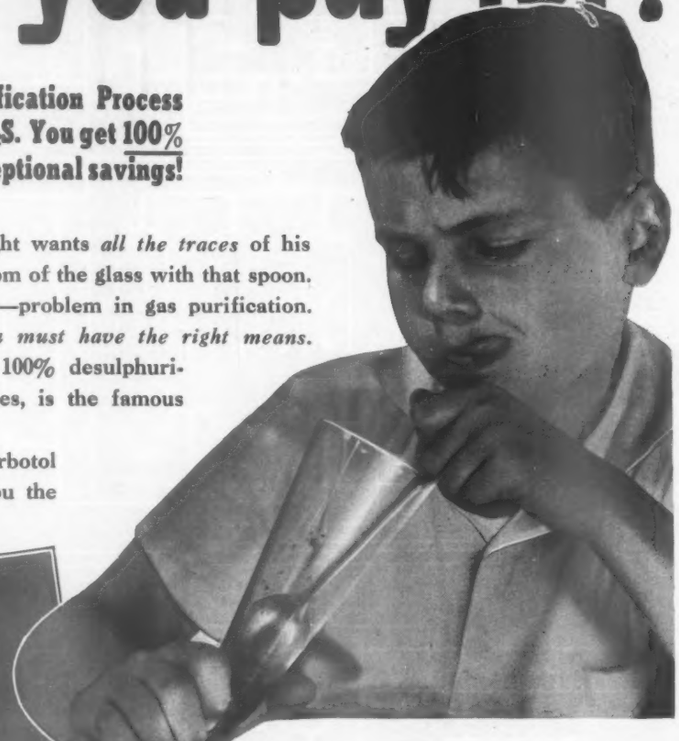

The soda glass pictured here is one of the old type with a narrow "V" bottom, which makes it impossible to get out all those remaining traces. Soda fountains have ceased to use them because they are *impractical.*

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1,300 bbl. per day. The reduced crude is received at the rate of 3,700 bbl. per day.

Just how the two sources of raw feed are divided and processed is most quickly and accurately seen on the accompanying flow chart but it should be mentioned here that all of the reduced crude is preheated in a separate pipe still and enters the coking system at about 650° F. The other stream of charging stock, known here as extraneous bottoms, picks up heat from the fractionator overhead on the respective unit before joining the stream of reduced crude going into the midsection of the fractionator. The temperature of the blended stream as it enters the column is about 635° F. The great bulk of the charge remains unchanged and passes to the base of the fractionator from which it is taken to the coker furnace serving that fractionator.

Mixed with the raw charge are about 1,300 bbl. of recycle oil so that each furnace actually receives about 3,800 bbl. per day of mixture. The furnace heats this oil to 883° F., outlet temperature, and at 50 lb. per sq. in. outlet pressure the hot oil flows directly to the coke drums.

As stated previously, four drums are assigned to each furnace and each group is divided into two pairs. This arrangement permits one pair to be on stream while the other is being cleaned. In routine operation the drums pass through an 80-hour cycle of on stream, cleaning, etc.; the time approximating the following relationship:

	Hours
Warming up	10
On stream	50
Cooling	12
Cleaning and heating	8
Total	80

The "warming up" period precedes the "on stream" in order to stabilize temperature conditions in the coking zone. This heating is accomplished by passing the overhead vapors from one pair of coke chambers down through the other pair which have just been cleaned.

The 50-hour period on stream builds up a coke bed inside the drums to an outage of 12 to 13 ft. The coke retains sufficient heat after the oil stream from the furnace is diverted to cause it to practically free itself of oil within the time the drum stands preparatory to cleaning.

Cleaning is accomplished by a rotary-type coke drill and ball mechanism which was originally installed to remove coke from the Dubbs cracking operation. The quantity of coke made at present approximates 100 tons a day.

The principal product (4,100 bbl. daily) coming from the coker is the distillate from the top of the coke drums while on stream. From the coke chamber this distillate first passes through a fractionator and then through a series of exchangers and coolers and then to storage as charging stock for the gas-oil cracking units.

An important byproduct of the coking operation is the gas. Its production is slightly above 1,800,000 cu. ft. a day and all of it also goes to the gas-oil cracking equipment. There it is mixed with the cracked gases and the two are processed through the absorption system. The difference in the operating pressures between the coking units and the cracking system makes it necessary to compress the coker gas to 250 lb. per sq. in. for delivery to the cracking system.

Cracking Operation

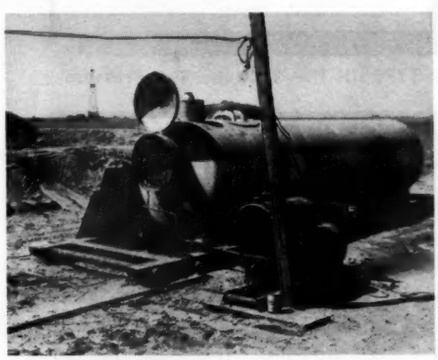
The cracking operation is conventional except that some cracked gasoline is contained in the coker distillate as it is received on the cracking side. The light fraction is the result of partial cracking of the oil as it passes through the delayed-coking equipment and most of this probably does not even reach the cracking furnace.

As may be seen in the flow chart of the cracking operation, the units receive some oil as well as the coker distillate. The relationship approximates 2,900 bbl. of heavy virgin gas oil to 4,100 bbl. of coker distillate processed daily. Interesting additions to the cracking equipment include the new double, end-fired cracking furnace equipped with capacity to provide soaking time at the two ends and a separate heater coil through which a portion of the coker gas passes to supply additional heat to the first bubble tower. Another new feature is the 25,000-bbl.-per-day centrifugal hot-oil pump driven by a 1,250-hp. electric motor.

SAFETY - Fire-Prevention Problem On Rotary Drilling Rigs

ROTARY drilling rigs have a fire-prevention problem the same as any other operating part of the oil business. There is always the danger of blowouts due to the penetration of a formation having a high gas pressure, but this hazard is reduced by having an adequately heavy mud and proper blowout preventers.

Small fires are also quite common as the rigs, regardless of type, use a combustible as fuel. Gas and oil are used for firing boilers or running engines; on mechanical rigs, distillates, gasoline and butane are also commonly used. The danger of fire on a steam rig is not as great as on a mechanical rig and the means of controlling any unexpected flame are much greater, as steam can be used to snuff out a fairly large fire. Where there is any considerable hazard from blowouts, the fire boxes on the boilers are equipped with steam jets for quick killing of the fires.



Engines on most mechanical rigs are equipped with special fire-prevention equipment, such as sparkproof ignitions, water-cooled exhausts, spark arresters, etc. However, in case of even a small fire, some type of extinguisher must be handy if it is to be controlled immediately.

Equipment should be rigged up so that the danger of fire will be minimized. Fuel tanks should be located as far as convenient from the engines, although satisfactory operation requires that they be not too far distant. Oil from the engines and other equipment should not be allowed to collect around and under the derrick and engine house.

The accompanying photographs show a good feature and a bad feature recently found on two different rigs. The portable slim-hole rig is equipped with a pair of fire extinguishers stored in special racks over the front bumper. This allows the crew to get to them quickly in case of emergency; it also prevents their being stored under heaps of equipment or in some inaccessible locker or chest in the tool house.

The other picture shows a light plant located close to a butane tank which holds the fuel supply for the rig. While this location reduces the number of connections necessary to rig up the light plant, it also increases the danger of fire. Butane vaporizes readily and a small leak around the tank may result in a high enough concentration of the gas to cause an explosion. Ignition can be caused by either the exhaust in the engine or an electrical spark. The takeoff for the light-plant fuel could just as well be located at some distance away from the butane tank.

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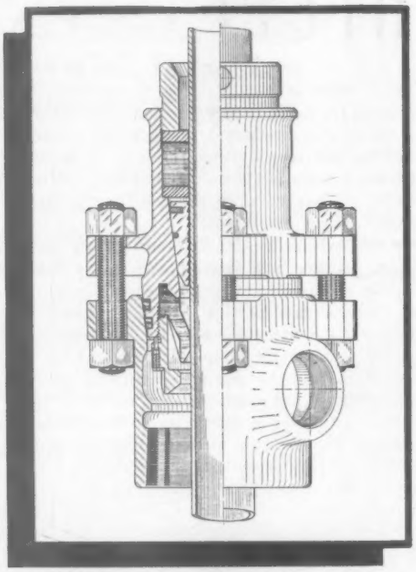

TYPE HH-1D—3000 lbs. Test Pressure

TYPE HH-1D—3000 lbs. Test Pressure

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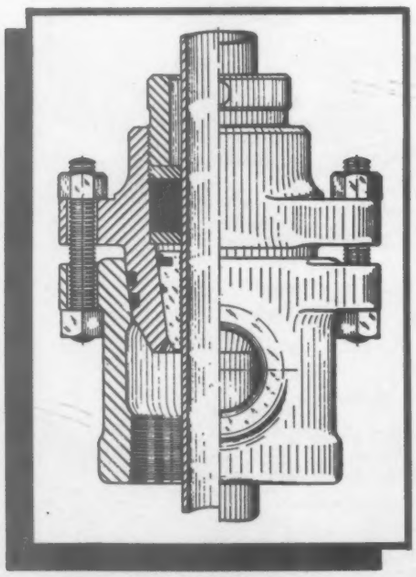

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TYPE HH-1—2000 & 3000 lbs. Test Pressure

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Its design embodies a flexible ribbed stripper rubber with upper and lower guides, which keep the couplings centered and prevent side thrust which would tend to tear the rubber. A particular feature is the lower guide, which prevents torn stripper rubbers on raising tubing.

The Type HH-1 National Tubing Head is identical with the Type HH-1D except there is no provision for a stripper rubber. By substituting its hanger for the Type HH-1D, when wells cease to flow, the permanent well investment can be materially lowered.

Both types of Heads are available in two specifications for 500 and 1500 pounds working pressures . . . For complete information ask for National descriptive bulletin No. 269.

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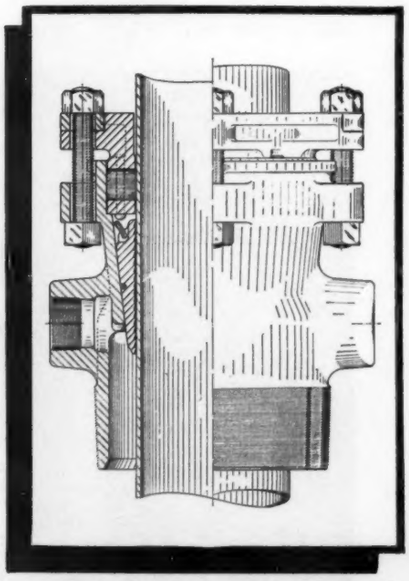
Available in a complete range of sizes for usual requirements.



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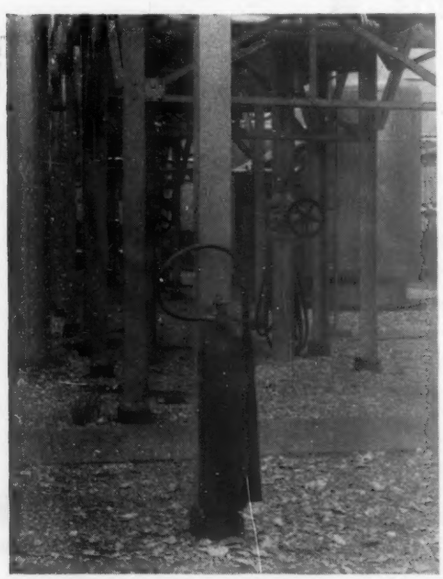
Fighting Fires With Carbon Dioxide Extinguishers

By P. W. EBERHARDT
Walter Kidde & Co., Inc.

ONE of the most effective extinguishing agents employed to combat fires in burning liquids or gases is carbon dioxide. Pure carbon dioxide gas, released under its own stored pressure (requiring no chemical reaction) is one of the fastest of all known extinguishing agents. It can handle many difficult types of blazes which cannot be extinguished by ordinary methods.

The portable carbon dioxide extinguisher is well known to the oil industry. It consists of a steel cylinder which contains compressed carbon dioxide gas at a pressure of 850 lb. at normal temperatures. The extinguisher is operated by turning a small handwheel. The carbon dioxide is discharged through a hose or swivel pipe leading to a nozzle shaped like a long narrow megaphone. The shape of the nozzle is so designed that the gas hits the fire with a minimum of turbulence in order to avoid agitating the blaze, particularly on light volatiles.

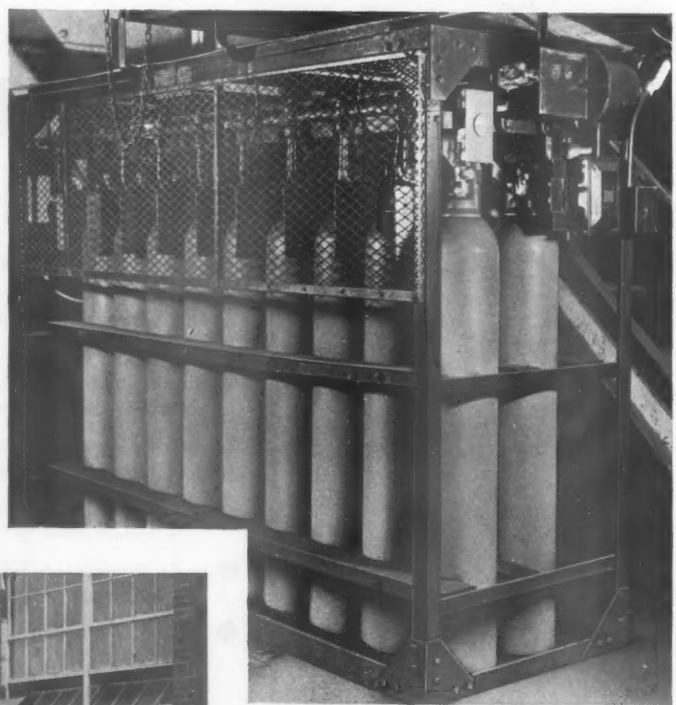
These extinguishers are available to industry in a variety of sizes. Smallest is an ingenious little fire fighter containing 2 lb. of carbon dioxide. It handles like a pistol—has a pistol-type grip and a trigger control. Pressure of the index finger is all the effort it takes. The operator simply aims at the fire and lets go. At the other extreme from this is the big carbon dioxide wheeled unit with a capacity of 100 lb. of gas. This unit is fitted with a long hose and a nozzle which is equipped with an auxiliary shutoff valve. The operator can thus control the release of carbon dioxide at the "business end" of the unit. The oil industry uses many of the 20-lb. capacity carbon dioxide extinguishers because they combine excellent maneuverability with a heavy wallop against flame.



Left: Small extinguishers, due to their ease of handling, play an important role in combating fires in the oil industry. This one is in a recycling plant near Corpus Christi, Tex.

The basic extinguishing action of carbon dioxide is smothering—robbing the fire of oxygen necessary for combustion. It is well known that a blaze must have air in order to continue to burn. By applying carbon dioxide to a fire involving flammable liquids, the oxygen content of the surrounding air is reduced to 14 or 15 per cent instead of the normal 21 per cent oxygen and the flame chokes to death.

In the early days of carbon dioxide fire fighting some people felt that this smothering action could not effectively be accomplished in the open air. Now it is recognized that carbon dioxide is entirely effective on many types of out-of-doors fires, even when a high wind fans the blaze. An extreme condition is the successful control of airplane motor fires in flight, despite the gale-wind effect of the slipstream.



Right: A battery of cylinders provides heavy artillery in a built-in carbon dioxide extinguishing system. This installation is usually located safely outside of the fire area

Below: Carbon dioxide extinguishers placed in the open near a pumping station where they are conveniently accessible in times of emergency

One important characteristic of carbon dioxide is its great rate of expansion when it strikes the atmosphere. As it discharges through the nozzle, the carbon dioxide is expanding 450 times in volume and, thus, delivers large concentrations rapidly, which spread to all parts of the fire area. This characteristic also enables the fire fighter to extinguish flames which are hidden by obstructions. The penetrating qualities of the expanding gas drive it into every corner and crevice.

Simple to Use

Safety engineers like carbon dioxide extinguishers because they require no complicated instructions for use. The natural way to use the extinguisher is the proper way. This is aptly demonstrated when, at our company's proving grounds, we hand an extinguisher to a man who has never used carbon dioxide before and tell him to extinguish a blaze. Such men, despite their inexperience, show us again and again that a beginner is very nearly as efficient as a trained operator in getting fire out in a hurry.

The Underwriters' Laboratories and Factory Mutual Laboratories approve carbon dioxide extinguishers for electrical and flammable liquid fires. In addition, these gas extinguishers are unusually effective against "three dimensional blazes," or running fires. Carbon dioxide is released as a gas and it spreads as a gas does. Thus, it can completely envelop burning gases or columns of flowing liquid.

The oil industry is using carbon dioxide ex-

Pioneers in improving America's oil with Synthetics

ADDITION AGENT is a term you now hear in all the best circles—right out loud.

Continental Oil Company said it right out loud even before introducing America to the Conoco motor oil that made it possible to give engines OIL-PLATING.

OIL-PLATING, achieved by the action of a synthetic, still distinguishes the latest Conoco product—Conoco N*th* motor oil. And Conoco N*th* brings still another Conoco advancement in synthetics. Called *Thialkene inhibitor*, its importance in present-day engine lubrication is largely apparent from these words on every can of Conoco N*th* oil:

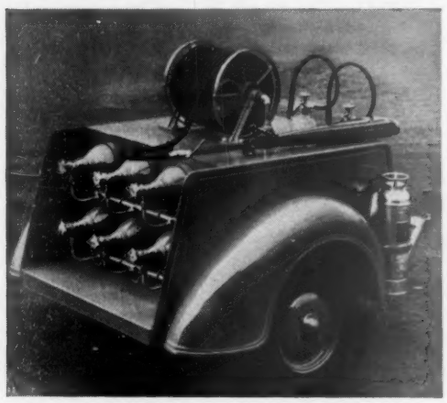
In a clean engine using this oil exclusively, the oil and the gauge-stick do not greatly discolor. This may make it hard to read the oil level. Look twice! Be sure!

Conoco N*th* is proof once more that Continental Oil Company not only looks ahead, but *gets there ahead—with the right goods.*

The whole line of Conoco Specialized Oil-Field Lubricants will show you exactly that. Continental Oil Company—*Pioneers in Bettering America's oil with Synthetics*

tinguishers in great numbers to protect such hazards as natural-gasoline plants, and recycling and repressuring operations. These portable extinguishers are likewise used for control rooms located under stills where a runaway fire may shut down the entire still for a long and costly period. Bulk storage plants and marine terminals create loading and unloading operations of this fashion. Pipe-line pumping stations run more to the larger sizes, usually wheeled extinguisher units.

On pipe-line welding trucks these fire fighters are especially popular, particularly when welding is being done on a "live" pipe line. On these occasions, a man with a carbon dioxide extinguisher often stands directly behind the welder in case his torch happens to ignite vapor. Laboratory rooms also are accustomed to carry small-



Trailer unit designed for high-powered fire fighting. Carries six 50-lb. carbon dioxide cylinders, manifolded together and hooked up with hose-reel and nozzle. One cylinder, or all six, may be released at once. Four portable extinguishers are carried to combat small fires

size carbon dioxide portables to control any small fires which may occur. It is particularly suited here since the gas will not affect or destroy samples or specimens under test.

Built-in Systems

Built-in carbon dioxide systems are enjoying increased popularity in the refining and distributing phases of the oil industry where they are used on such hazards as hot-oil pump rooms, canning departments, marine terminal pump houses, etc. A built-in system is used to protect a fixed hazard usually in an enclosed space in which the hazard may be severe; where an operation may be automatic or unattended; or to guard an operation whose location constitutes a hazard to other parts of the plant located nearby. In other cases it protects equipment which is expensive or whose shutdown would involve a long delay in some vital operation.

Typically, a built-in automatic fire extinguishing system consists of three elements: The carbon dioxide storage tanks, the detecting mechanism, and the piping and nozzles for distributing the gas.

The more widely used type of automatic release operates on the principle that air expands when heated. One or several small metal air chambers is installed on the ceiling of the space to be protected. This detector is connected by means of a small copper tube with a release valve on the carbon dioxide cylinder installation. Normal temperature changes will not effect this detector, since a small vent can release the slow pressure changes which occur, but when fire breaks out, the change in temperature is so rapid that the expanded air cannot escape fast enough through the vent and the resulting pressure trips the valve and operates the extinguishing system. This operation, for most fires, occurs in from 5 to 10 seconds.

The carbon dioxide cylinders are usually stored outside of the space to be protected. When the extinguishing system is set in operation, the carbon dioxide gas is released through piping and distributed to shielded nozzles spotted throughout the space to be protected. Thus the fire is completely controlled in from 10 to 15 seconds after detection.

Control of a built-in carbon dioxide system may be either manual or automatic or both. The manual control is usually located in a break-glass pull box located safely away from the fire area.

When spaces are densely inhabited, it is good practice to provide a warning alarm which actuates prior to the gas discharge, particularly where automatic systems are employed.

These are two methods of application of carbon dioxide from built-in systems—total flooding and local application. The total flooding system, as you would infer, applies a sufficient volume of carbon dioxide gas to handle a fire which may involve the total volume of the space to be protected. The local application scheme involves only the use of shielded nozzles to protect individual equipment or areas within a large space.

Built-in systems can be engineered in any size and capacity, ranging from 10 lb. of carbon dioxide up to several tons. In some instances, directional valves permit the application of many hazards from one central battery of cylinders or storage point. It is also possible to pick off or use, from this central battery, the required amount of gas for the space or location in distress. The remaining gas serves as reserve or for use in another location.

Substructure Reduced by Two-Level Installation

DRILLING contractors and oil companies are trying to do away with large, high substructures as the cost of moving them and the increased time required in rigging up adds to the expense of operation. This move has led many operators to install the hoist on the level with the derrick floor and the engines from 4 to 6 ft. below that height.

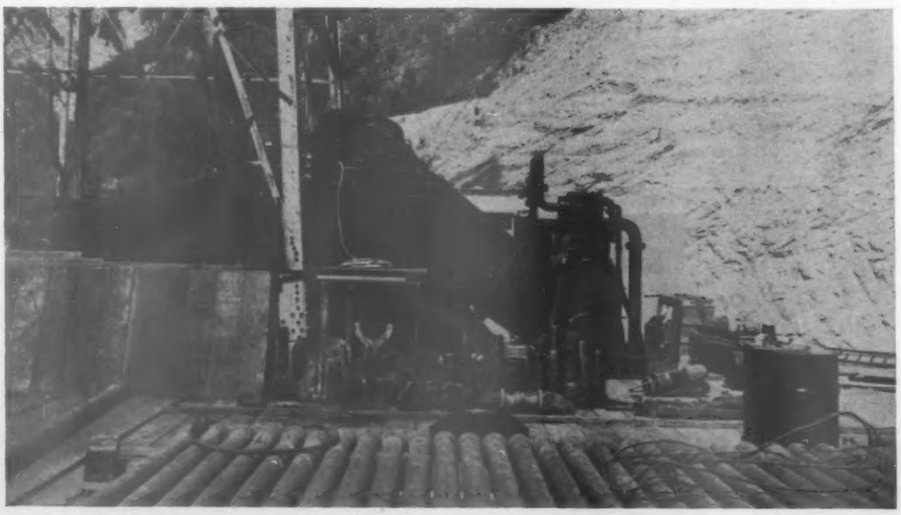
Where high substructures (6 to 10 ft.) are used, an engine substructure is still required but its size and weight are reduced and it is much simpler to place the steam or internal-combustion engines. The engines may be set on the ground level or on a low earthen foundation when the derrick substructure is short, such as was done at the rig shown in the accompanying photograph.

This rig is located near Ventura, Calif., and as can be seen from the background, the location is partially cut out of the side of a hill. The engine in this case sets about 4 ft. below the floor level, the hoist being supported by a special substructure which has its rear legs sloping at about 45°.

The engine used for driving the hoist is a 12 by 12-in. vertical, twin-cylinder steam engine mounted on a special subbase. The chain guard is of the oil-bath type and is leakproof. The engine part of the chain guard was built by the engine manufacturer and the hoist part by the hoist manufacturer, but when the assembly was made at the rig, they fit perfectly. The use of an oil-bath chain at this point is necessary as engine chain is in operation at all times during the drilling and hoisting operations; a failure at this point will shut down the entire rig and may even cause more serious complications due to sticking of the drill pipe.

The rig is of the California type where the V-door is on the same side as the rotary chain. The singles of pipe are brought in across the rotary-chain guard. The crew has eliminated any danger of pipe or other equipment fouling under the derrick floor by building a ramp across the entire V-door side of the structure.

This is a big-hole operation as can be seen from the 5⅞-in. drill pipe and the 12¼-in. rock and drag bits. Subs and other accessory equipment are stored on the platform alongside the engine.



Digests of A. P. I. Papers

Presented before the midyear meeting, Tulsa, May 19-22, 1941

Factors Affecting the Use of Gravel in Oil Wells

KENNETH E. HILL (College of Mining, University of California, Berkeley, Calif.)

USE of gravel adjacent to the liners in oil wells is intended to decrease the sand production and increase the oil-production rate. Theoretically and practically, both of these purposes can be attained by the use of gravel which has a size ratio of 8 when compared to the diameter of the sand at the 10-percentile point on the cumulative screen analysis. However, recognition must be given to the fundamental laws underlying the use of the frequency cumulative curves in the choice of gravel size for screening unconsolidated sand.

Decreased sand production.

The migration of sand through a gravel screen is a very complex phenomenon, and depends upon a number of variables. The most important of these are the size, replacement and thickness of the gravel, the size and size distribution of the sand, and the hydrodynamic flow conditions. Probably the most important variable affecting the screening of unconsolidated sand is the ratio of the maximum diameter of a closely sized gravel to a significant grain diameter of the formation sample.

The placement of the gravel in the well should assure uniform porosity and permeability of the gravel. Faulty placement may yield poor results even though the gravel size was properly chosen. A tightly packed envelop of gravel must surround the perforated casing completely, because failure of the screen in but one place might lead ultimately to well abandonment.

The thickness of the gravel screen is an important variable in successfully excluding sand. This is especially true when prepacked liners are used. Work done by the author indicates that a thickness equal to the diameter of three grains of gravel is the minimum thickness for successful screening action. This must be a well packed, uniformly sized layer of gravel, with the formation sand as one boundary and the liner as the other. For positive and certain screening action, a thickness equal to five gravel grain diameters should be used. A thickness of 0.5 in. was quite satisfactory in an extensive series of experiments for all gravel sizes smaller than 3 to 4-mesh and over all rates of flow.

The question of whether to choose a gravel size which will exclude completely all sand, or a size which will allow a small amount of sand continually to enter the well, is of importance. If a gravel is chosen sufficiently coarse to allow a small amount of sand to migrate continually into the well bore, the sand within the gravel will result in a greatly decreased permeability of the gravel screen. It would seem that a finer gravel than specified by the 10-percentile rule should be used in order that the sand production almost completely would be eliminated.

Increased production rate.

The question of whether a gravel screen around the walls of a well will result in an increased production rate is one which has been a subject of much controversy.

The use of a metal screen or liner implies that it must have openings small enough to retain the sand and, at the same time, must not contain enough openings to be structurally weakened. For this reason, metal screens containing sufficiently small openings to retain the sand will result in large flow resistances due to the convergence of the streamlines into the holes. This is especially true if most of the openings have been clogged with sand and if flow is maintained only through the free slots. It can be seen, therefore, that a gravel screen of the same diameter as the liner of a well may result in decreased flow resistance.

The theoretical advantages of an increased well diameter are well known, having been the subject of several articles. However, the effect of hole size in actual production performance was very difficult to isolate due to the presence of many other variables. The use of gravel packing to retain the theoretical advantages of a large-diameter hole was recommended for wells which are being drilled with small-diameter liners.

The optimum condition for gravel packing a well from the standpoint of permeability is a ratio of about 8. This corresponds closely with the optimum condition from the standpoint of mechanical bridging, showing that these two factors are related intimately. Also, it is evident that, although the permeability of the gravel envelop is reduced considerably by the infiltration of sand, the permeability of the gravel adjacent to the well after equilibrium conditions have been established is at least 30 times that of the formation sand for all ratios less than 11. This will result in attaining almost all of the production advantages to be gained from the increased permeability around the well. Inasmuch as the use of ratios somewhat less than 11 is desirable from the standpoint of certain screening action, and as all the production increase due to increased permeability adjacent to the well may be obtained for ratios less than 11, it would seem desirable to use a ratio not greater than about 8 for all ordinary conditions encountered in gravel packing a well.

An attempt was made to study the production history of gravel-packed and prepacked wells in the Wilmington field, but any comparison of production rates was made difficult by the existence of proration. Data show, however, that the production rates of prepacked and gravel-packed wells are greater than the corresponding conventionally completed wells. This is thought to be due to the fact that the gravel-packed and prepacked wells can be produced at a higher percentage of their potential capacity than can the conventionally completed wells. It does not mean, necessarily, that graveled wells actually have increased potentials.

•

Casing Window Practices In the Illinois Basin

By C. G. HERRINGTON (Carter Oil Co., Mattoon, Ill.)

PRACTICE of cutting windows in well casing to make it possible for one oil well to produce by pumping simultaneously from several different oil sands at various depths is now being used in the Illinois basin area. As many as three pay zones comprised of tightly compacted sandstones and separated by cavy shale beds five to 150 ft. thick frequently are found in a given location and must be shot with nitroglycerin. Removable window sections composed of aluminum and magnesium alloys are installed in casing, then are drilled out with special casing mills, shot out, or opened with wall scrapers.

Aluminum alloy metal is more adaptable to varying conditions, but magnesium alloy, having lower overall cost, has been used where no advantage can be gained by deferring production from upper sands and where operating conditions are suited to its lower collapse and tensile-strength properties. Accurate logging of productive zones and good cementing are essential, and no producing difficulties have been encountered which could not be cured by simple remedies, such as ordinary liner settings.

In assembling a casing string for locating a removable section opposite an upper pay zone use of special heavy casing shoes at each end of the window section is of primary importance. These shoes, known as "Illinois pattern," are equipped with a female thread to receive the window section and are of value in protecting the exposed ends of the steel pipe during shooting operations. After completion in the lower horizon, a temporary plug is set to prevent contamination by drilling fluid while the window section is being removed.

In plugging off the lower sand, the sand face is covered with gravel and the actual seal obtained with gypsum cement. The alloy-metal section, with the cement behind it, is removed with a rotary wall scraper to expose the formation prior to shooting. Some upper pay zones have been exposed by gun perforating or by ripping the alloy window section, the metal showing no tendency to tear under the action of conventional casing-ripping tools.

One method of completing is to destroy the metal window by shooting directly with nitroglycerin instead of using a scraper, either liquid or solidified nitroglycerin being used in concentrations of 1 to 3 qt. per sq. ft. Bakelite shot and bomb shells are employed, tin shells showing a tendency to ball up. While shooting with nitroglycerin is economical, some difficulties have been encountered in that the ductile metal leaves jagged ends which may interfere with cleanout operations. The author estimated a total cost for a typical 25-ft. window as averaging $950 for installing and scraping, and $475 for installing and removing with nitroglycerin.

A total of 489 aluminum alloy window sections have been installed by more than 60 different operators in 28 basin pools since January 1, 1941,

(Continued on Page 54)

THE FEWER THE BETTER

Interruptions to drilling due to rock bit cutter wear or failure are costly propositions. The fewer of them there are in the course of drilling a hole, the better-looking the cost sheet. Even a slight increase in the amount of hole-per-bit makes a big difference.

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Complete information on these Molybdenum steels and others which are establishing service records in many oil field applications are contained in our technical book "Molybdenum Steels in Oil Production", which will be sent free on request.

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QUESTIONS ON TECHNOLOGY

By W. L. NELSON, TECHNICAL EDITOR

Deposition of Calcium Bicarbonate From Water

At what temperature does calcium bicarbonate break down and start precipitating out of water as calcium carbonate?—G. P. H.

The precipitation of calcium carbonate from water containing bicarbonate is more a function of the concentration of carbon dioxide in, or in contact with the water, the pressure, and the concentration of calcium in the water, than a function of temperature. In the International Critical Tables,[1] 50 or more sets of data are related by means of the equilibrium constant, and the effect of temperature can scarcely be distinguished because of the effects of other variables, particularly the pressure. The chemical equation is:

$$CaCO_3 + H_2O + CO_2 = Ca^{++} + 2(HCO_3^-)$$

from which the equilibrium constant is:

$$K = \frac{{}^c(Ca^{++}) \times {}^c(HCO_3^-)^2}{{}^c(CO_2)}$$

in which:

K = equilibrium constant

${}^c(Ca^{++})$ = concentration of calcium ions (mols per liter)

${}^c(HCO_3^-)$ = concentration of bicarbonates ions (mols per liter)

${}^c(Co_2)$ = concentration of carbon dioxide (atmos. partial pressure)

The average value of K is about 5×10^{-4} but the values for particular sets of data are not entirely consistent. To completely answer your question, it would be necessary to use the above equations.

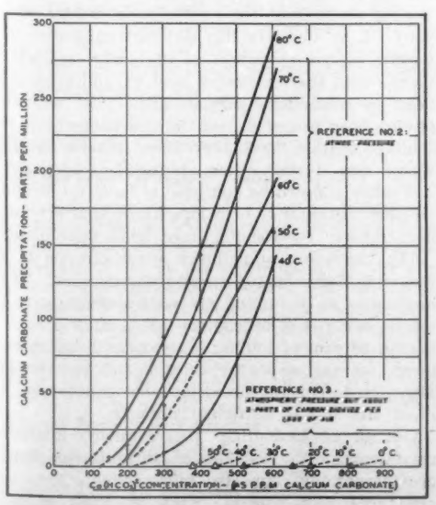
The rate of formation of calcium carbonate is relatively slow. This has been studied extensively but most of the information is published in German.[4] It is noteworthy that other salts that are associated with calcium carbonate in water, particularly magnesium salts, have a definite effect on the equilibrium constant and on the rate of carbonate deposition. Thus, the composition of the water will alter the results to some extent.

As an approximation, the solubility data given in the figure on this page may be used to gain some idea of the situation. The main data[2] was taken from an article on the use of sodium hexametaphosphate as an agent for keeping carbonate in solution. The use of 2 p.p.m. of hexametaphosphate may suppress precipitation almost completely. The few points[3] along the bottom of the figure were for a naturally occurring water which was in contact with air which contained 3.02 to 3.27 parts of carbon dioxide per 10,000 parts of air. According to this figure, a solution containing 200 p.p.m. of calcium bicarbonate (expressed as calcium carbonate) will not begin to precipitate calcium carbonate until a temperature of about 50° C. (122° F.) is attained. At other temperatures the deposition of carbonate would be somewhat as follows:

40° C. (104° F.) none
50° C. (122° F.) starting
60° C. (140° F.) 6 p.p.m.
70° C. (158° F.) 14 p.p.m.
80° C. (176° F.) 38 p.p.m.

Should the solution contain 300 p.p.m. of bicarbonate, precipitation of carbonate will start at temperatures lower than 104° F.

Finally, it should be stated that the presence of excess carbon dioxide above that required to form bicarbonate, appears to act nearly independently of the carbon dioxide that is combined as bicarbonate.[5] Thus, the free carbon dioxide is evolved first during heating and not until this has been nearly completely expelled does precipitation of carbonate scale begin to take place.



Solubility of calcium bicarbonate solution at various temperatures and at atmospheric pressure

References

1. Int. Crit. Tables, Vol. VII, p. 296, McGraw-Hill Book Co., Inc., New York, N. Y.
2. Hatch & Rice, Surface-Active Properties of Hexametaphosphate, Ind. Eng. Chem. 31, 51 (1939).
3. Wells, R. C., from p. 827 of Vol. III of Mellore "A Comprehensive Treatise on Inorganic and Theoretical Chemistry," Longmans & Co.
4. Strumper, R., Z. anorg. allgem. Chem. 208, 33 and 46 (1932)—also Chimie and industrie 32, 1023 (1932).
5. Bayless, John R., Hydrogen Ion Control in Water Softening, Ind. Eng. Chem. 20, 1191 (1928)—also Speller, F. N., "Corrosion Causes and Prevention," p. 362, McGraw-Hill Book Co., Inc., (1935).

Diesel Index of Fuels

Please advise me as to the procedure of taking the diesel index of fuels. I would appreciate the titles to a few books on this type of subject.—R. L.

The diesel index has been adopted to some extent as a measure of the ignition quality of diesel fuel oils because of the expense of determining cetane or cetene numbers in an engine, and because of controversy as to the proper method of operating the engine or the significance of the results so obtained.

The diesel index is obtained by multiplying the aniline point of the oil in degrees Fahrenheit by the A.P.I. gravity (60-60) and dividing by 100. Thus, to determine the diesel index it is necessary to determine these two properties. The aniline-point test is described in Appendix 2 of the 1940 edition of Petroleum Products and Lubricants by the American Society for Testing Materials, 260 South Broad Street, Philadelphia, Pa.; or on Page 223 of the first edition of U.O.P. Laboratory Test Methods, Universal Oil Products Co., 310 South Michigan Avenue, Chicago.

The aniline-point test consists of heating a mixture (20 ml.) of equal parts of the oil and aniline in a water bath so that the temperature can be carefully controlled. As the temperature is increased, the aniline and oil dissolve in each other to an increasing extent, until finally complete solution into a single clear solution results. The temperature at which complete solubility or miscibility occurs, is taken as the aniline point.

Masking Odor of Fuel Oil

We are looking for an inexpensive chemical that can be used to give sour crude oil a good odor so that it can be used for fuel oil.—H. E. M.

The possibility of masking the sour odor of crude oil by means of a perfume seems to have been taken seriously by no one. As small an amount as ½ lb. of perfume per barrel would be somewhat expensive, and if truly powerful odorants were considered, the cost of even 1/10 lb. would probably be prohibitive. There are, however, a number of somewhat cheap materials such as nitrobenzene, the terpene hydrocarbons, organic esters and the essential oils of bergamot, pine, citronella, cedar, sandal wood, wintergreen, etc., which have pungent odors. Nitrobenzene is worth only about 10 cents a pound and amounts of 0.01 per cent (0.04 lb. per bbl.) might mask the odor.

The odor of a sour crude oil is due primarily to hydrogen sulfide and mercaptan compounds. Even a minor vaporization such as distilling 5 or 10 per cent of the crude oil by heating and stripping with steam or perhaps stripping with air would suffice to remove the objectionable odor. If cheap water is available, it would be possible to wash or scrub the hydrogen sulfide from the oil but if mercaptan sulfur compounds are the main source of the odor none of the above suggestions would be adequate.

For the removal of both hydrogen sulfide and the mercaptan compounds, a wash with caustic soda would be most effective and probably the cheapest method now available. Such a system was indicated in the January 30, 1941, issue of The Oil and Gas Journal, but applied to gasoline rather than a heavy stock. The cost of such a treatment is usually less than a cent a barrel but the cost might be considerably greater.

In any of the proposed methods in which water or a solution is employed, great difficulty would be encountered with the formation of emulsions, and the rate of settling of the treating agent would be slow because of the viscosity of the fuel oil. These difficulties might be almost unsurmountable.

Digests of A.P.I. Papers

(Continued from Page 51)

with no failures ascribable directly to window practice. In four cases the lower hole was lost through shooting damage and caving of upper formations, but average frequency of all types of failures is estimated at 1 per cent. With lower overall cost the only advantage, magnesium alloy casing has only limited application. Some 350 such window sections have been installed by 10 different operators since January 1.

●

Treatment of Oil Sands With Surface-Active Chemicals

C. F. BONNET (American Cyanamid & Chemical Corp., Azusa, Calif.)

OIL sands may be treated with surface-active chemicals in order to reduce to a minimum any harmful effects on oil production caused by excess water in the area surrounding a well bore. In planning this treatment, consideration should be given to the physical characteristics of the sand and the effect of pressure differentials upon the flow of fluids in the sand. The development of chemicals that will cause very large reductions in the surface tension of water, even though extremely small amounts of these chemicals are used, has caused much interest.

Certain experiments have shown that, when oil and water are flowed through a sand body into a well, the ratio of water to oil flowing into the bore continues to increase. Examination of the sand face reveals that more and more of the sand surrounding the well bore is becoming water-saturated, hindering the flow of oil and aiding the flow of water. On the other hand, if the water in the sand is treated with a good surface-active agent, the reverse will occur. More of the sand surrounding the bore becomes oil-saturated, and the flow of water diminishes.

The term "surface active" is derived primarily from the action of these chemicals in water, rather than in any other liquid. Being, in a sense, semisoluble in water, these chemicals are not distributed uniformly throughout a volume of liquid, but collect at the boundaries wherever the liquid touches a container or any solid matter immersed in the water, or where it is exposed to air (a gas).

Perhaps the oldest surface-tension depressant is common soap—e.g., sodium stearate, which consists of a sodium carboxyl (water-soluble) group and a large insoluble fatty group. There are many similar compounds, or pseudosoaps, that are used for cleaning, scouring, and emulsifying. These compounds are good emulsifiers for dirt, oil, and other nonwettable substances, and are classed as detergents. Others have very little detergent effect and act more as penetrating agents, allowing water to flow freely into and out of small openings. Surface-active organic chemicals were classified as shown in the accompanying table.

Field work may be summarized by saying that the tests have been quite scattered—only a few tests in each field. Results have been difficult to analyze because of varying conditions, lack of complete data, and lack of a sufficient number of tests in any field to allow comparison of average data. Field experience to date permits the following observations:

1. The method of applying surface-active chemicals to oil wells is of paramount importance, even in testing. Some tests involved up to 16 hours' rig time merely for mixing large volumes of solution and washing. Frequently, special washing and pumping equipment was involved. In some cases, volumes of solutions exceeded 400 bbl. The cost of chemicals has not been a large part of the cost of treatment, but many treatment tests have cost the operators more than $1,000 each. It is difficult to conduct many such tests unless they are strikingly successful. Less expensive methods of application can be worked out, so that field applications at moderate cost can be made widely and repeatedly.

2. Because of recognized penetrating, emulsifying, and dispersing properties, surface-active agents have been tried for the removal of gelled and caked mud opposite pay formations. Over considerable contact periods, and when mud has been dehydrated thoroughly—both by filtration and by oil—the penetrating effect may be of some value. On the whole, however, these chemicals show little promise of being effective for removing mud. In any case, removal of mud cake must involve intense agitation and, perhaps, considerable volumes of solution. Repeated treatment with different chemical solutions may help. Time of contact and *time*, as well as degree, of agitation are of equal or greater importance than the chemicals used. Here again, cost is a factor, as time may be the greatest element of treatment cost. Gravel packs are especially difficult to clean, as their physical nature resists agitation and rapid circulation through the gravel.

3. Indications are that, after treatment with a surface-active agent, an equal volume of water will be recovered more quickly than when plain water is used. Often more water is recovered with the initial production after surface-active treatment. Surface-active treatment seems to have little effect on final production, although it may aid in the rapid and more uniform elimination of filtrate water from the sand face of the well bore. Depending on the nature of the sands, this may result in a cleaner well, a well less subject to early short-circuiting of formation water (unless great variations in sand permeability exist); and, temporarily at least, may result in higher ratios of oil to water, when these are produced together. When low or moderate pressures exist, surface-active treatment may shorten the time for bringing a well onto production, but maximum potential is unlikely to be increased except in comparison to wells that have encountered difficulties in drilling in or in completion and thus have been badly water-blocked.

4. The problem of "water block" in the sand face probably can be overcome best by: First, good drilling-mud condition to prevent excessive filtration; and, second, treatment of the mud with surface-active agents that will allow water filtering into the sand to be expelled more quickly and uniformly by the flow of oil.

In cleaning out and working over producing wells, surface-active agents may be useful also in the water used to kill the well, or to wash it, so that any water forced into the sand by hydrostatic pressure will be discharged more quickly and uniformly by the reservoir fluid.

CLASSIFICATION OF SURFACE-ACTIVE CHEMICALS

Group	Type No.	Formula*—	Description	Relative wetting power of best of each type as marketed (per cent)
A	1	$R—COONa$	Soaps	..
	2	$R—SO_4Na$	Fatty alcohol sulfates	23
	3	$R—CONHC_2H_4SO_4Na$	Sulfated fatty-acid emides	5
	4	$R—COOC_2H_4SO_4Na$	Sulfated fatty-acid esters	6
B	1	$R'_{2}—CHSO_4Na$	Secondary alcohol sulfates	25
	2	$R'—OOC—CH_2$ $R'—OOC—\underset{\displaystyle H}{\underset{\vert}{C}}—O—SO_3Na$	Sulfated esters of higher alcohols and dibasic acids	Not marketed
	3	$R'—Ar—SO_3Na$	Alkylaryl sulfonates	6
	4	$R'—OOC—CH_2$ $R'—OOC—\underset{\displaystyle H}{\underset{\vert}{C}}—SO_3Na$	Sulfonated esters of alcohols and dibasic acids	100
C	..	..	Miscellaneous	24

*R = fatty alkyl group; R' = primary or secondary nonfatty alkyl group; Ar = aryl or aromatic group.

●

Characteristics of Microbiological Deposits in Water Circuits

W. J. O'CONNELL, JR. (Wallace & Tiernan Products, Inc.)

REFINERY corrosion which takes place at normal atmospheric temperature may be due to the presence of microorganisms in the water. An accumulation of these tiny forms of life can restrict the circulation in a system so that ordinary chemical corrosion takes place at a faster rate. Obviously, where the solution contains an inhibitor or the metal is coated with a smooth protective coating, or the cleaner the surface is maintained, the greater will be the efficiency of the exchanger system.

Control of biofouling in refineries was pioneered in 1926 at the same refinery where biophysical accumulation of silica in boilers was reduced and where zeolite softener operation first was improved by chlorination of the deep-well supply which destroys the organism which had caused a serious slime growth throughout the distribution system.

This original work led to a complete layout of makeup and cooling-water treatment at the Shell Chemical Co. alcohol plant at Dominguez. L. L. Carter was responsible for meticulous design of makeup and cooling-water treatment units that are used to soften and rechlorinate domestic-quality water supplied by the local utility company. J. G. Carriere has directed particular attention to the operation of the water-treatment plant—with the result that heat exchangers have been in continuous service since 1936 without having been removed from service on account of fouling; neither have they been cleaned on the water side during other shutdowns. Admiralty and other alloy tubes continue to have the bright polished appearance of a gun barrel and original heat-transfer coefficients have been maintained.

The biofouling of refinery water circuits is a factor in corrosion of structural materials. The mechanics of biofouling are well understood and means for complete control are available. Successful control of fouling is predicated, by agreement, on the need for careful and systematic attention to control, provision of adequate equipment and use of sufficient dosages.

Control of biofouling, pretreatment, internal treatment and the development of protective films are inseparably connected in complete efforts to effect corrosion control. Each by itself is valuable, but the maintenance of unfouled surfaces in water circuits depends on combined use of all.

Pipe-Line Activity

R.F.C. May Finance Large Emergency Lines

WASHINGTON, D. C.—Jesse Jones, federal loan administrator, said at his press conference the Reconstruction Finance Corporation might finance or build new pipe lines sought by defense authorities for carrying gasoline and oil from the Southwest to the East Coast. Mr. Jones said he did not know whether the pipe lines would be built by private companies or by the Government.

Portland-Montreal Project Is Pushed by Humble Staff

Arrangements were made the first part of this week for the early letting of contracts for the Standard Oil Co. of New Jersey's 250-mile, 12-in. crude-oil pipe line from Portland, Me., to Montreal, Que. Plans call for the letting of contracts for three sections, each of which will be of nearly equal length, averaging slightly more than 80 miles each. One of these sections will be laid in Canada; the other two will be laid in the United States. Work is scheduled to start June 15. Last week aerial-survey maps of the route were delivered at New York where they are being studied by a staff of executives and engineers from the Humble Pipe Line Co. organization who have been assigned to directing the construction of this project.

The route which the line will follow extends northwestward from Portland to points near Gorham, Me., Gorham and Lancaster, N. H., and Newport and Troy Vt. According to present plans, purchased electric power will be used extensively in order to make it possible to construct station facilities rapidly.

Jones & Brooks, Inc., Completes Quarter of Standard Contract

In the construction of the 82-mile northern section on Standard Oil Co. of Indiana's 168-mile, 6-in. gasoline pipe line between Council Bluffs, Iowa, and Sioux Falls, S. D., Jones & Brooks, Inc., have completed 26 miles. It is reported that they are progressing at the rate of 14,000 ft. per day. The job was started shortly after the first of the month. Headquarters for this gang will be moved from Canton, S. D., to Hawarden, Iowa.

Socony-Vacuum Starts Construction Of Topeka-Sioux City Pipe Line

Construction work was under way last week for the 250-mile, 6-in. gasoline pipe line which Socony-Vacuum Oil Co., Inc., is building from the company's trunk line at Topeka, Kans., to Sioux City, Iowa. Jones & Brooks, Inc., has established a field office and headquarters at Blair, Neb., to handle the contract for laying 92 miles of this line. R. E. Pitts is superintendent in charge of the job.

Globe Starts Construction of Kansas-Iowa Gasoline Line

Latex Construction Co. has started construction on the contract for the 126-mile section of Globe Oil & Refining Co.'s 225-mile, 6-in. gasoline pipe line from McPherson, Kans., to Council Bluffs, Iowa. The section contracted by Latex is at the northern end of the line. The Latex organization is doing its own welding. It is reported that B & M Construction Co. will start early next week on the construction of 100 miles at the south end of the line.

Illinois Pipe Line Enlarges Facilities Serving Hoodville

Illinois Pipe Line Co. has been installing loops and pumping equipment to enlarge facilities for moving oil from the Hoodville, Ill., area. This will enlarge capacity of the company's system between Benton and Enfield, Ill. The development of the Hoodville pool since the end of last year and the development of the Benton pool since the first part of this year has congested pipe lines in this section. Daily production of the Benton pool is 17,000 bbl.; that of the Hoodville pool is 10,000 bbl. Hoodville produces from three zones; Benton produces from one zone.

This area is served by two pipe-line systems. These are the Illinois Pipe Line's system which moves oil north to the main trunk line at Martinsville, Ill., and the Sohio Pipe Line's system which extends southward to Mount Vernon, Ind., where oil is delivered into barges. Practically all of these barge shipments are eastward on the Ohio River to refineries in Ohio and Kentucky.

Texas-Empire Prepares to Replace Section in Kansas

Texas-Empire Pipe Line Co. has issued specifications and asked for bids to be submitted May 29 for work to be done on the company's trunk line in Sedgwick County, Kansas, where 8 miles of 12¾-in. o.d. will be taken up and 8 miles of 10¾-in. will be laid. The 12¾-in. pipe, which will be taken up, has been in the ground a number of years and was originally laid for the part of the Empire Pipe Line Co. in that area which was acquired by Texas-Empire Pipe Line Co.

Pipe-Line Right-of-Way Bill Will Be Rushed

WASHINGTON, D. C.—The administration and Congress seek to prevent a shortage of oil and gasoline for furnaces, motor vehicles and factories throughout the industrial east.

The severity of the situation, resulting from the use of American tankers to feed oil to the Atlantic coast for transshipment to Britain, was called to the attention of Congress last week in an unusual message from President Roosevelt. It said restriction of the use of oil in the East was a "distinct possibility."

The president commended to the consideration of the House legislation which was introduced immediately afterward by Chairman William P. Cole, Maryland, of a special interstate oil subcommittee. The bill would confer on the president broad powers to build or contract for pipe lines that would have blanket right-of-way through states and across railroads.

Mr. Cole predicted the bill would be reported without delay by the interstate-commerce committee. He said passage of the measure would immediately permit construction of badly needed pipe lines from the southwestern wells to the Atlantic coastal cities.

The possibility of monopoly-law violations, he said, would be circumvented by certification of necessity and a contract entered into by the Government.

Mr. Cole filed a subcommittee report stating that unless ways were found immediately to supply 100,000,000 bbl. of crude oil a year to the Atlantic seaboard the nation's largest industrial areas would suffer an acute shortage.

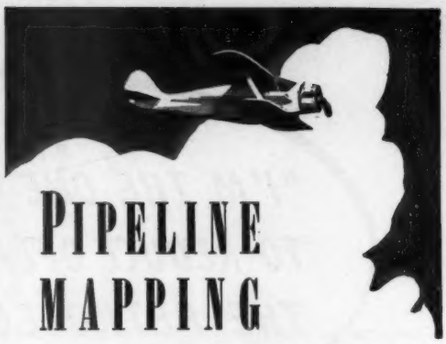
Magnolia Petroleum Plans Gas and Crude-Oil Lines

BEAUMONT, Tex.—Magnolia Petroleum Co. is preparing to place under immediate construction a 200-mile natural-gas pipe line from production in Jackson County, Southwest Texas, to provide fuel for the company's refining operations in the Beaumont area.

Capacity of the line will be in excess of 60,000,000 cu. ft. of gas per 24-hour day, John Newton, general manager of the Magnolia Petroleum Co., has announced.

The line is to be in operation by January 1 of next year. It will be built by the Magnolia's production department. Major portion of the line will consist of 14-in. pipe, but in the proximity of Beaumont some of it will be 16-in. The pipe has already been purchased and preliminary phases of the project are under way.

The company also plans construction of a 53-mile crude-oil pipe-line system to the new Abell pool in northern Pecos County, West Texas.



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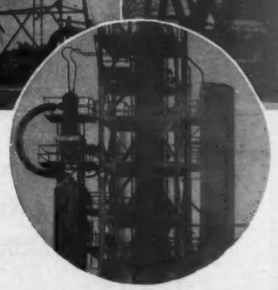

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FIELD DEVELOPMENTS...

HIGHLIGHTS FROM THE WEEK'S NEWS—

Completions reported during the past week were 37 above those of the preceding period. However, there were 32 fewer oil wells which were nearly balanced by 28 more gas wells. There were 144 dry holes abandoned as against the previous low record of 103.

The outstanding development of the week was the completion of a good Devonian producer in the Louden, Illinois, pool. The first well to find oil in this pay started off with about 35 bbl. an hour and 25 per cent water. The latest reports indicate that oil production has dropped to about one-quarter of this amount while the proportion of water has increased to 40 per cent. The first well to reach the Devonian, but the second to find oil started off with 80 bbl. an hour and less than 1 per cent water through ⅝-in. choke. The two wells are in the north half of the field which appears to limit potential Devonian production materially as the smaller well is south of the Whisenant & Trenchard producer.

The increased number of gas wells this week marks a definite trend as the search for new supplies of gas is being vigorously pushed in the eastern industrial areas. There are large areas of known shale-gas reserves in Kentucky and the Oriskany area of West Virginia and Southwest Pennsylvania is providing much encouragement to local operators.

OHIO: That the old Clinton area is not finished by any means was indicated when Industrial Gas Corp. brought in an 11,000,000-cu. ft. gas well near Zanesville. This is the largest producer from the Clinton sand in many years (p. 64).

EASTERN KENTUCKY: The gas play is producing results and 13 completions have a total initial yield of nearly 5,000,000 cu. ft. The wells are scattered through four eastern counties. Many of these small gas wells are in shale pay which holds up for many years (p. 64).

EAST TEXAS: Activity set off by the Hawkins discovery was almost equaled with a new pool opened in Rusk County, another showing in Anderson County and eight new wildcats starting at scattered points over the East Central Texas basin (p. 80).

OKLAHOMA: Wildcats showed for small pool openers in Cleveland, Hughes and Okfuskee counties and gas-distillate production was being developed by Ramsey Petroleum Corp. on the Centrahoma structure in Coal County. Second well at the Tecumseh Lake pool was working to shut off water (p. 58).

WEST VIRGINIA: Columbian Carbon Co. completed a large gas well on the J. R. Sweezy farm in the Ravenswood district, Jackson County, which extends the Sandyville district 1½ miles southeast and opens an extensive area. Offset locations have already been made (p. 68).

NORTH CENTRAL TEXAS: Clay County's second deep Mississippian lime pay was opened. This time it was in the Antelope area in the southwestern part of the county, about 20 miles southwest of Shell Oil Co., Inc., Mississippian lime discovery near the town of Henrietta. Development was also under way at the new conglomerate discovery in Montague County and the Mississippian lime discovery in Young County (p. 66).

ILLINOIS: Discovery of Devonian production at Louden was not enough for Illinois operators. They also brought in the first Tar Springs production in Clay County and completed a 6,000-bbl. well in Wayne County—the largest in the state in recent months. Richland County's wildcat, which shot oil over the top of the derrick a week ago, was put on the pump for 300 bbl. a day (p. 69).

LOUISIANA GULF COAST: Flanks of the Anse La Butte dome in St. Martin Parish were headed for additional development from deep zones after the completion of a 9,449-ft. well 1½ miles from present production. Phillips Petroleum Co. established 11,000-ft. production in the Erath field, Vermilion Parish (p. 76).

CALIFORNIA: Productive limits of the Southeast Coalinga field were extended by one of a group of wells which Standard Oil Co. of California is drilling in hopes of joining Northeast and Southeast Coalinga. Drilling activity showed a marked gain in the Los Angeles Basin and a new deeper oil sand was found in the Oak Canyon field of the coastal district (p. 62).

SOUTHWEST TEXAS: The second producer for the new Carrizo field of Dimmit County was being completed as operators began concentrating their rigs in the area. Only one wildcat was active in the county. In the Corpus Christi area, Gulfboard completed a 34,000,000-cu. ft. gas well offshore from Calhoun County in San Antonio Bay. The gas will be used for fuel to drill another test northwest of the gasser (p. 83).

TEXAS GULF COAST: Deep-sand production was opened on the north flanks of the old West Columbia field in Brazoria County, and commercial oil was found from the Cockfield sand in the West Conroe gas field of Montgomery County. The West Columbia field well was the deepest test ever drilled on the flanks of the structure which has been one of the best paying salt-dome structures in the district (p. 72).

KANSAS: Viola lime production at the Zenith pool appeared to be even more extensive than previous optimistic estimates after a group of Colorado and Nebraska men brought in a good well from zones structurally lower than other dry holes. Kearny County also had its third wildcat in recent months—all drilled on the same structure by Stanolind Oil & Gas Co. The first two had shows in the Topeka, but were abandoned after lower formations were dry (p. 61).

INDIANA: Hard on the heels of the important Devonian production brought in at Louden, Ill., by Whisenant & Trenchard, the same operators found new production in Black Township of Posey County from the Cypress sand (p. 64).

COLORADO: Another oil well was completed in the Hiawatha gas field in the northwestern part of the state (p. 78).

SOUTHERN WEST TEXAS: Five new wells were in various stages of completion in the Abell field of northern Pecos County and rumor had it that a deep Ordovician test would be drilled in northern Winkler County (p. 71).

ARKANSAS: Several deep wildcats were in critical stages and particular importance was attached to one 3 miles east of the Schuler field of Union County which found oil shows in several formations above the Smackover lime (p. 73).

COMPLETIONS IN ALL FIELDS . . .

(Week Ended May 24, 1941)

	Oil	Gas	Dry	Total	1941 total comp. to date	1940 total comp. to date
N. Y., Pa., and W. Va.	104	18	5	127	2,046	1,951
Ohio	6	12	10	28	581	491
Indiana	10	0	6	16	180	134
Kentucky	2	12	6	20	254	179
Illinois	51	0	21	72	1,231	1,289
Michigan	6	0	14	20	341	486
Kansas	12	4	10	26	702	596
Oklahoma	24	4	14	42	577	679
Nebraska	1	0	1	2	33	1
Missouri, Iowa	0	1	2	3	9	11
Texas:						
North Central Texas	27	0	22	49	1,035	1,288
West Texas	44	0	0	44	774	874
East Texas	14	2	7	23	459	268
Texas Panhandle	10	1	0	11	198	245
Texas Gulf Coast	5	1	5	11	413	522
Southwest Texas	22	4	10	36	709	840
Total Texas	122	8	44	174	3,588	4,037
North Louisiana	7	0	4	11	224	234
Louisiana Gulf Coast	16	1	5	22	326	421
Total Louisiana	23	1	9	33	550	655
Arkansas	1	0	0	1	59	73
Mississippi and Southeast	3	0	0	3	94	77
Montana	3	1	0	4	89	63
Wyoming	2	0	0	2	53	62
Colorado, Utah	3	0	0	3	17	6
New Mexico	2	1	1	4	109	318
California	14	0	1	15	400	450
Total United States	389	62	144	595	10,913	11,558
Total previous week	421	34	103	558		
Week ended May 25, 1940	407	34	101	542		

Second Tecumseh Lake Well Troubled With Salt Water

By
ROBERT INGRAM

OUTLOOK for the new Tecumseh Lake pool of Pottawatomie County was somewhat darkened last week by the difficulties with water at Gulf 1 Dixon, SE NW SW 36-10-3, two locations north of Hall-Jordan's discovery well. First indications that the well might not be much came when it was reported the electrical log showed tight sand in the Wilcox. Later, after casing was set and the plug drilled, crews were unable to bail the fluid—most salt water—below 3,000 ft. from the top. However, it is believed most of the water was coming from the Simpson, just under the pipe which was cemented at 5,212 ft.

Corrected top of the Wilcox sand was given as 5,237 ft., and total depth 5,245 ft. At week's end, the well was swabbing 10 bbl. of oil and 15 bbl. of water an hour. Tubing with packer was set near the top of the sand and the well then swabbed 10 bbl. of oil and 77 bbl. of salt water in 8 hours with the fluid decreasing. Other operations in the area had not yet reached the pay zone.

Meantime, crews were testing the Misener at the North American 1 Belle Hirzel, NE NW SE 18-17-1w, a mile south of the discovery well of the Guthrie pool in Logan County. After getting dry Wilcox sand at 5,564-90 ft., the hole was plugged back and pipe set at 5,274 ft., base of the Misener zone. Casing was perforated in the zone where 22 ft. of saturation had been cored.

Cleveland County Wildcat Tests Good Show of Oil

Southeast of the old Bugher well in Cleveland County, W. A. Delaney was swabbing down a load of water and getting a good show of oil at 1 Montgomery, SE NW NE 13-7-2w, last week. After being shut down for 12 hours, the well made several small heads, virtually all load water, and some gas came through. Drilled to 7,650 ft., pipe was set at 7,635 ft. There was 2 ft. of sand at the bottom. After bailing down, operators plan to deepen the well slowly. The Bugher well, drilled by Hubert E. Bale et al, was somewhat lower structurally than the 1 Montgomery, but it made some 60,000 bbl. of oil before being washed out with salt water.

DISCOVERIES GAGED

Smith 1 Johnston, SE NE NE 22-10-11, 4,000,000 cu ft. gas, 700 lb. R.P., sand 2,051-72 ft., 7-in. 2,343 ft., sand 2,348 ft., Gilcrease 2,406-10 ft., T.D. 2,410 ft., Okfuskee County.

Texas 1 Butcher, NW SE NW 15-12-9, flowed 57 bbl. in 24 hr., 41 gravity, T.D. 4,046 ft. in Wilcox, P.B. 3,323 ft., 7-in. 3,292 ft.., shot 3,310-23 ft., Okfuskee County.

Wilcox 1 Stephney, NE NW SW 35-14-7, flowed 100 bbl., 40 gravity, second Wilcox 4,007 ft., P.B. 2,940 ft., 7-in. 2,882 ft., sand 2,900-20 ft., shot 2,895-2,920 ft., Creek County.

WILDCATS PLUGGED

Hall-Jordan 1 Swan.....SE NE NW 29-6-5 Dry, T.D. 3,832 ft., Wilcox 3,795 ft., Viola 3,465 ft., Pottawatomie County.

Crowell 1-A Turner.....SW SW NW 13-9-9 Dry, T.D. 3,382 ft. in white sand, Cromwell 3,325 ft., Hughes County.

Burke-Greis 1 Peabody.....SW SE SW 20-14-9 Dry, T.D. 4,028 ft., Wilcox 4,015 ft., 7-in. 2,153 ft., Creek County.

McCasland 1 Prine.....SE NW NW 12-2-5w Dry, T.D. 2,513 ft., water sand 2,473-2,513 ft., Stephens County.

Atkinson 1 Jelks.....NE NE SE 22-5-7w Dry, T.D. 5,003 ft., show gas 2,740-50 ft., Grady County.

Jones 1 Basserman.....SE NE SE 22-15-3w Dry, T.D. 6,383 ft., white sand, second Wilcox 6,364 ft., first Wilcox 6,270 ft., Logan County.

FIELD DRILLING COMPLETED

Altus, Jackson County: Gulf 11 Kelly, NW SW NE 10-1-20w, pumped 48 bbl., 7-in. 1,470 ft., T.D. 1,554 ft.

Cement, Caddo County: English 1 Mayes, SE NW SE 3-5-9w, swabbed 56.6 bbl. in 4 hr., potential 350 bbl., 6-in. 4,218 ft., perf. 3,818-36 ft., T.D. 4,218 ft.

Phillips 2 Fletcher, SE NE NW 34-6-10w, potential 1,210 bbl., swabbed and flowed 202 bbl. in 4 hr., Rowe sand 3,387-92 ft., T.D. 3,392 ft., 5½-in. 3,387 ft.

Cromwell, Okfuskee County: Reese 4 Berryman, NW SW 36-11-8, 750,000 cu. ft. gas, 750 lb. R.P., 7-in. 3,487 ft., Cromwell 3,487 ft., at 3,503 ft. flowed 12 bbl. oil an hour, T.D. 3,504 ft., H.F.W., P.B. 3,503 ft.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Fields	22	10,397	69,036
Wildcats	2	157	8,053
Gas wells: Fields	3	*11.41	8,209
Wildcats	1	*4	2,410
Dry holes: Fields	8	.....	19,275
Wildcats	6	.....	25,141
Total	42	.....	132,124
Recompletions	1	742	.....

*Million cu. ft.

Cumberland, Marshall County: Pure 1 Thompson 206, SW SW 21-5s-7e, old well drilled deeper from 5,056 ft. to 5,107 ft., T.D., flowed 742 bbl. through tubing.

Droppleman, Okfuskee County: Devonian 2 Phillips-A, SE NW SW 26-12-8, flowed 383 bbl., Cromwell 3,635 ft., 5-in. 3,635 ft., T.D. 3,669 ft., shot 3,647-63 ft.

Empire, Stephens County: Cities Service 18 Cantrell, NE SE SE 32-1s-8w, pumped 240 bbl. oil and some water, T.D. 2,739 ft., 6-in. 2,320 ft., T.D. 2,739 ft.

Stanolind 16 Stephens, SW SE NW 35-1s-8w, dry, T.D. 2,329 ft., 5½-in. 2,319 ft., rip casing 2,135-65 ft., 2,190-2,230 ft., and 2,245-75 ft., water.

Fish, Seminole County: Patterson 1 Dempsey, SE SW 18-7-8, dry, T.D. 1,513 ft., Calvin 1,368 ft., lower Calvin 1,474-1,511 ft., 5-in. 1,493 ft.

Hall 2 Fish, SE NW 19-7-8, swabbed and flowed 450 bbl. oil and 50 bbl. water, lower Calvin 1,477 ft., 7-in. 1,478 ft., T.D. 1,505 ft., shot 1,485-1,500 ft.

Guthrie, Logan County: Continental 1 Donoghue-A, NE NE SW 7-17-1w, flowed 790 bbl. in 10 hr. and 1,100,000 cu. ft. gas, T.D. 5,493 ft., 2½-in. tubing 5,467 ft., second Wilcox 5,459 ft., 7-in. 5,458 ft.

Sinclair Prairie 1 Sult, SW SW NE 7-17-1w, flowed 585 bbl., second Wilcox 5,454 ft., 7-in. 5,451 ft., T.D. 5,482 ft.

Healdton, Carter County: Ideal 16 Scroggins, NE SE SE 32-3s-3w, pumped 3 bbl. oil and 3 bbl. water, T.D. 1,194 ft.

Sun 35 Mullen, NE NW SW 3-4s-3w, pumped 46 bbl. oil, T.D. 1,024 ft., 7-in. 870 ft., shot 983-1,013 ft.

West Hewitt, Carter County: Tide Water 3 Ward, E½ SE NE 19-4s-2w, flowed 620 bbl., sand 2,135-69 ft., limestone 2,169-71 ft., sand 2,175-2,230 ft., T.D. 2,230 ft.

Neustadt 7 Choate, SW NW NW 20-4s-2w, flowed 552 bbl. through ¾-in. choke, T.D. 2,037 ft., 7-in. 2,033 ft., perf. 1,880-2,014 ft.

Hobart, Kiowa County: McIntyre 4 Watkins, SE SW NW 20-7-17w, 10,000,000 cu. ft. gas, 210 lb. R.P., limestone 945-1,146 ft., green shale and shaly lime 1,146-50 ft., T.D., 7-in. 1,037 ft., P.B. 1,122 ft., acid 1,052-75 ft.

South Konawa, Pottawatomie County: NE NW 16-5-5, flowed 1,560 bbl., Hunton 2,190 ft., Sylvan 2,445 ft., Viola 2,568 ft., T.D., 7-in. 2,196 ft., acid.

Little River, Seminole County: Rudco 9 Tewee, SE SW NE 14-7-6, pumped 75 bbl., some water, Gilcrease 3,154 ft., 7-in. 3,205 ft., T.D. 3,218 ft., P.B. 3,213 ft.

Norris (gas), Latimer County: Le Flore 41 Lyons, NE NE SW 9-6-22, dry, T.D. 1,882 ft., show gas 1,529-1,764 ft.

Oklahoma City, Oklahoma County: I.T.I.O. 4 Trosper, SW NE SW 13-11-3w, pumped 86 bbl. in 24 hr., Hoover 4,001 ft., 7-in. 3,999 ft., T.D. 4,023 ft., shot 4,008-16 ft.

Ramsey, Payne County: Mid-Continent 8 Columbia, NE SW 18-18-2, potential 2,531 bbl., Hunton 4,597-4,617 ft., T.D.

St. Louis, Pottawatomie County: Vise 1-A Mitchell, NE NW NE 3-6-4, 665,000 cu. ft. gas, sand 3,522-31 ft., 5-in. 3,522 ft., shot 3,524-31 ft., T.D. 3,555 ft., S.I.

Mid-Continent 2 Cecil, NE SW NE 6-6-4, pumped 220 bbl., Viola 4,162 ft., 7-in. 4,166 ft., T.D. 4,220 ft., acid.

Panner 1-A Fowler, N½ SW NE 3-7-4, pumped 25 bbl. oil and 5 bbl. water, Dense 4,072 ft., dolomite 4,107 ft., Wilcox 4,300 ft., 7-in. 4,299 ft., T.D. 4,305 ft., P.B. 3,976 ft., perf. 3,875-3,923 ft., acid.

Commercial 4 Bray-McCully, SW SE 6-7-4, flowed 185 bbl., ½-in. choke, Hunton 3,942 ft., 7-in. 3,945 ft., T.D. 3,977 ft., acid.

Worsham 1-A Lowther, NW NE SW 33-7-4, dry, T.D. 4,245 ft., dolomite 4,165 ft., 7-in. 4,213 ft.

West Seminole, Seminole County: Wood 3 Homestake, 28-9-6, dry, T.D. 2,645 ft., lower Calvin 2,640 ft.

Wood 3 Templeton, NW SE SW 28-9-6, pumped 73 bbl. oil and 125 bbl. water, 36 gravity, Calvin 2,550-83 ft., T.D. 2,583 ft., 5-in. 2,550 ft., shot 2,558-83 ft.

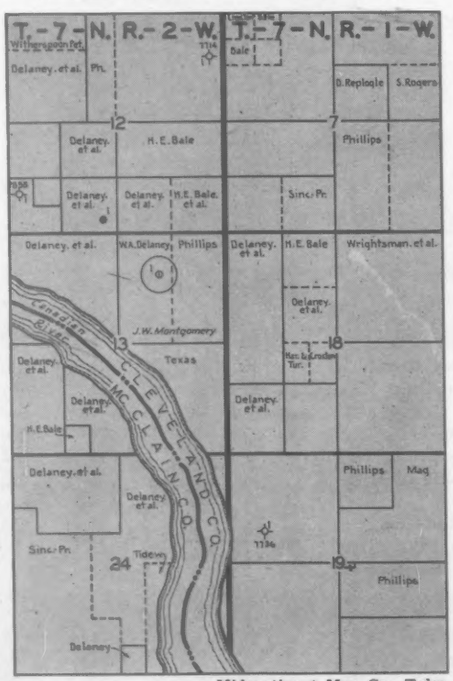
East Stroud, Creek County: Lewis 2 Jones, SW NE SW 32-15-7, flowed 315 bbl., Prue 2,798 ft., 7-in. 2,798 ft., T.D. 2,829 ft., shot.

Tussy, Garvin County: Skelly 2 Gibson, NE SE 30-1-3w, dry, T.D. 3,745 ft., Tussy limestone 3,395 ft.

Tyrola, Seminole County: Traugh 1 Cooper, SW NW SW 4-5-6, dry, T.D. 1,880 ft., third Boggy, stain.

Velma, Stephens County: Brainard 5 Cruce, NW SE NW 10-2s-5w, dry, T.D. 1,036 ft.

Weleetka, Okfuskee County: Fleming 1-B McKinney, NW SW SE 18-10-11, flowed 50 bbl., T.D. 2,187 ft., sand 2,178 ft., 5-in. 2,178 ft.



Midcontinent Map Co., Tulsa

W. A. Delaney 1 Montgomery, circled above in SE NW NE 13-7-2w, southeast of the old Bugher well near Noble in Cleveland County, had a good show of oil last week and was expected to make a well from the Wilcox at 7,640 ft.

WILDCATS DRILLING

East of the Meridian

27-2-9, W½ SE NW ..... Ramsey 1 Harryman T.D. 5,002 ft., perf. 4,790-4,935 ft., est. 6,000,000 cu. ft. gas, S.I. casing pressure 1,170 lb., S.I., Coal County.

27-2-9, NW SE NW ..... Ramsey 1-A Harryman Sand 816 ft., cored hard dry sand 321-39 ft., drilling 900 ft., Coal County.

16-9-4, E½ NE SW .... Crosbie and Atlantic 1 School T.D. 4,722 ft., P.B. 4,651½ ft., perf. Hunton 4,580-4,620 ft., flowed 567 bbl. in 24 hr. through 2½-in. tubing, no water, testing, Pottawatomie County.

23-9-11, SW NW SE ..... Arrow 1 Grannerman T.D. 3,454 ft., perf. 3,391-92 ft., show gas and water, P.B. 3,371 ft., perf. 3,287-3,300 ft., 3,330-45 ft., 2,980-93 ft., 2,830-58 ft., 2,844-70 ft., 2,350-56 ft. no shows, P.B. 2,336 ft., perf. 2,230 ft., 2,242-57 ft. and 2,260-73 ft., water and some show gas, swabbing, Hughes County.

2-11-10, NE NE NW ..... Sunray 1 Brooks Second Wilcox 3,909-22 ft., dry, T.D. 3,922 ft., electrical log to 3,921 ft., run 5½-in. casing, Okfuskee County.

14-11-10, NW SW NW ..... Alma 1 Replogle T.D. 3,198 ft., lower Cromwell, flow dropped from 12 bbl. oil and 40 bbl. water to 8 bbl. oil and 40 bbl. water, Okfuskee County.

West of the Meridian

13-7-2w, SE NW NE ..... Delaney 1 Montgomery First Wilcox 7,640 ft., cored dolomitic sand with show oil 7,640-50 ft., 7-in. 7,635 ft., Cleveland County.

18-17-1w, NE NW SE ..... North American 1 Hirzel Cored 5,555-67 ft., dolomite and white salty sand, second Wilcox 5,564 ft., electrical log showed saturation in Misener at 5,212 ft., ran 7-in. to 5,274 ft., to test Misener, Logan County.

29-21-1w, SE SE SW ..... Samedan 1 Briggs Perry gas 3,390 ft., cored gray medium angular sand and broken sand and shale 3,401-19 ft., D.S. test with packer at 3,404-19 ft., gas and mud, recovered 500 ft. salt water, drilling 3,954 ft., Noble County.

South of the Base Line

35-1s-5w, NE NE ..... Skelly 4 Robberson Sand 7,386-90 ft., odor oil and gas, sand 7,438-48 ft., cored 7,448-60 ft., recovered green shale, shale 7,460-7,695 ft., sand 7,695-7,700 ft., lost circulation 7,714 ft., stuck drill pipe, recovered and drilled sand to 7,721 ft., cored fine grained sand with odor 7,721-30 ft., 53° dip, cored sand 7,730-48 ft. (base Tulip sand 7,730 ft., show oil, 57° dip, T.D. 7,803 ft., set 5½-in. 7,791 ft., Stephens County.

34-6s-6e, NE NW NW ..... Batson 1 Walden First report, 2,500-ft. test, Marshall County.

Production in Low Edge Well Improves Outlook at Zenith

By ROBERT INGRAM

OPERATORS in the important Zenith pool of Stafford County were rechecking their subsurface information on the area last week after the performance of the Russell Volk 1 McComb, N½ NE NE 22-24-11. The well had production from the Viola lime at a sea-level elevation of —2,029 ft., which was 19 ft. lower than the supposed water level and was structurally lower than some other wells which had not produced. It was swabbing 35 bbl. an hour on preliminary tests after acid treatment, and did not appear to be making any water from the Viola.

The well had the top of the Misener at 3,801 ft. and had saturation from 3,804-09 ft. The Viola was topped at 3,816 ft. and showed saturation at 3,816-19 ft. and 3,835-38 ft. Total depth was 3,842 ft. Any possible water intrusion from the Misener was believed shut off by the string of 5½-in. casing set at 3,816 ft., and the little water showing during the tests was believed to be caused by the acid.

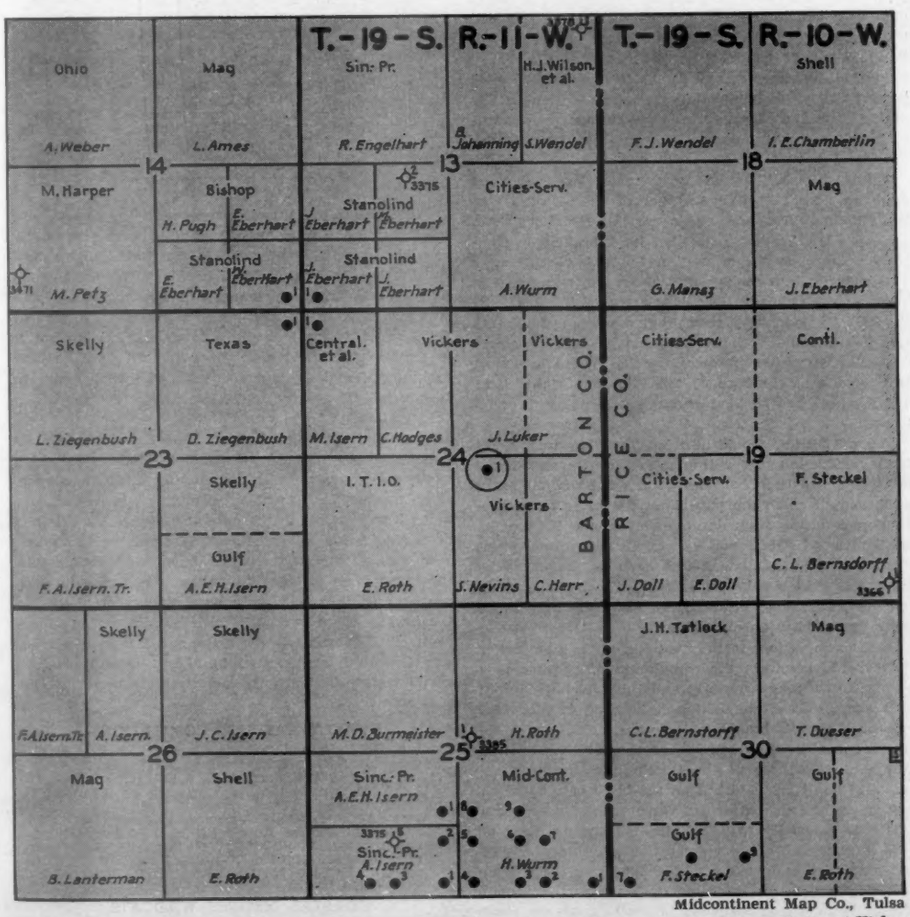
Although the full significance of the Volk well was not clear, it was admitted that at least its performance was "very interesting." Stanolind Oil & Gas Co., one of the most important operators in the field, has offset production to the new well both to the north and to the east. Engineers for the company admitted the well might have considerable effect on possibilities in the Viola to the north end of the field, but said it was too early to make any predictions.

Geology on the 1 McComb was worked out by J. T. Paddleford, Wichita. Mr. Paddleford believes the limits of the pool will extend far to the west and will also be pushed to the north making it one of the largest areas in the state. Already it is one of the most active, having had 27 completions since the first of the year as compared to 42 at Hall-Gurney and 23 at Geneseo. The development has been steady since the pool was opened in the Misener in 1937 and production is now coming from both Misener and Viola in a supposed common source of supply.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Kansas			
Oil wells: Fields	12	13,265	38,828
Gas wells: Fields	3	*36	6,311
Wildcats	1	*11.9	4,339
Dry holes: Fields	5	.....	18,672
Wildcats	5	.....	18,182
Total	26	.....	86,332
Nebraska			
Oil wells: Fields	1	432	2,266
Dry holes: Fields	1	.....	2,940
Wildcats	2	.....	2,925
Total	4	.....	8,131
Missouri			
Gas wells: Fields	1	*3.7	540
Dry holes: Wildcats	2	.....	3,709
Total	3	.....	4,249

*Million cu. ft.



Midcontinent Map Co., Tulsa

Joining of the Silica and Bowman pools of Barton County was forecast last week after the completion of Vickers 1 Nevins, circled above in N½ NW SE 24-19-14w, from the Arbuckle dolomite. Edge wells of the Silica pool are shown at the bottom and the Bowman wells are shown at upper left

Stanolind Starts Third Test in Kearny County

Stanolind Oil & Gas Co. last week started work on its third wildcat test in the extreme western part of the state, confirming reports that the company would test the area completely regardless of results. The new wildcat was Stanolind 1 Patterson, E½ SE SE 23-22-38w, about 7 miles south of the 1 Billinger which was abandoned earlier this month at a total depth of 5,155 ft. The 1 Billinger was a little more than ½ mile west of Stanolind 1 J. M. Judd which was drilled to a total depth of 6,041 ft. in the pre-Cambrian during 1940. Both the previous tests were in 15-21-38w. Both the Judd and Billinger tests had shows of oil in the Topeka lime at around 3,360 ft., but were abandoned after the deeper zones had been tested.

DISCOVERIES GAGED

George Reeves et al 1 Stark, C W½ SW NW 18-26-11w, gaged 11,960,000 cu. ft. gas, Viola 4,121-54 ft., T.D. 4,339 ft., acid, Pratt County.

WILDCATS PLUGGED

Shields et al 1 Waggle ..... C S½ SW SE 28-7-24w Dry, T.D. 4,333 ft., Lansing 3,710 ft., Topeka 3,422 ft., sand 4,157 ft., conglomerate 4,171 ft., Arbuckle 4,301 ft., Graham County.

Magnolia 1 Conrad ..... C E½ NE SW 33-19-17w Dry, T.D. 4,018 ft., Lansing 3,582 ft., conglomerate 3,920 ft., Arbuckle 3,957 ft., Rush County.

Winkler-Koch et al 1 Kaufman ..... C E½ NE NE 8-22-1w Dry, T.D. 3,618 ft., Lansing 2,370 ft., Mississippi 2,962 ft., base Mississippi 3,300 ft., Misener 3,349 ft., Hunton 3,353 ft., Viola 3,465 ft., Simpson 3,499 ft., Arbuckle 3,572 ft., Harvey County.

Continental Oil 1 Taylor ..... SW SE SW 17-18-6w Dry, T.D. 3,368 ft., Lansing 2,797 ft., Mississippi 3,298 ft., Rice County.

Rex & Morris 1-A Lucas ..... NE SW NE 26-28-6e Dry, T.D. 2,845 ft., Mississippi 2,818 ft., Butler County.

FIELD DRILLING COMPLETED

Bemis, Ellis County: Cities Service 3-C Collahan, C W½ NE SE 24-11-17w, 3,000 bbl., Arbuckle 3,390-95 ft., T.D.

Bloomer, Rice County: Aylward Prod. 4-B Habiger, C E½ NW NE 5-18-10w, pumped 100 bbl., Arbuckle 3,239-43 ft., T.D.

Cunningham, Pratt County: Skelly 5-A Krehbiel, C S½ SW SE 24-27-11w, pumped 338 bbl., Lansing 3,455-3,519 ft., T.D.

Geneseo, Rice County: Continental Oil 6 Gibson, SE SW SW 24-18-8w, pumped 2,619 bbl., Arbuckle 3,214-29 ft., T.D.

Keesling, Rice County: Olson Oil 3 Cox, C N½ NE NE 9-20-9w, pumped 488 bbl., Arbuckle 3,247-52 ft.

Keller, Greenwood County: Ward McGinnis 1 Keller, SE SE NW 22-26-13, est. 4,000,000 cu. ft. gas, Burgess sand 1,491-98 ft., T.D.

Lost Springs, Marion County: R. E. Youker 3 Bucher, NW SW NE 28-17-4, pumped 33 bbl., Mississippi 2,417-27 ft., T.D.

Max, Stafford County: Stanolind 2 Helmers, C E½ SW NW 1-22-12w, pumped 2,818 bbl., Arbuckle 3,553-3,565 ft., T.D.

McLouth, Jefferson County: McLaughlin & Sons 2 Bartlett, NW SE SW 33-9-20, 6,150,000 cu. ft. gas, Bartlesville sand 1,433 ft. to Mississippi 1,473 ft., T.D. 1,485 ft.

Raymond, Rice County: Stormfeltz & Hyde 1-B Specht, C N½ SE SW 16-20-10w, pumped 370 bbl., Lansing 3,116-3,140 ft., T.D.

Shallow Water, Scott County: Atlantic 1 Roark, C E½ NE SE 10-20-33w, dry, T.D. 4,896 ft., Topeka 3,555 ft., Lansing 3,920 ft., Mississippi 4,615 ft.

Shutts, Ellis County: T. M. Deal 4 Drelling, C W½ NE SW 4-12-17w, dry, T.D. 3,700 ft., Topeka 3,124 ft., Lansing 3,358 ft., Sooy 3,633 ft.

Silica South, Barton County: O. J. Conneli 1 Peters, SE NE SE 13-20-11w, dry, T.D. 3,343 ft., Topeka 2,580 ft., Lansing 3,003 ft., Arbuckle 3,322 ft.

Silica West, Barton County: Texas 6 Petz, C W½ SW SE 7-20-11w, pumped 120 bbl., Arbuckle 3,318-39 ft., T.D.

Pem Drlg. 1 Wolf, C E½ NE NW 1-20-12w, dry, T.D. 3,367 ft., some oil and water 3,357-67 ft., Dodge 2,968 ft., Sooy 3,343 ft., Arbuckle 3,348 ft.

Trapp W., Russell County: Derby et al 1 Maier, C W½ SW SE 10-15-14w, pumped 502 bbl., Arbuckle 3,207-11 ft., T.D.

Wellman Gas, Rice County: Ingling & Parker 1 Partington, C NW SW 22-21-9w, 25,938,000 cu. ft. gas, Misener 3,312-28 ft., T.D.

Wherry, Rice County: C. L. Carlock 1 Oden, C NE 6-21-7w, dry, T.D. 3,366 ft., Lansing 2,905 ft., Sooy 3,326 ft.

Zenith, Stafford County: Stanolind 2 Kirkpatrick, C E½

(Continued on Page 82)

Limits of Southeast Coalinga Extended by 3,800-bbl. Well

By
L. P. STOCKMAN

LOS ANGELES, Calif., May 26.—Standard Oil Co. of California increased crude-oil prices from 3 to 11 cents per barrel last week with the largest increase being made in the intermediate grades. Simultaneous with the increase in crude oil, the company also posted 0.5-cent raise in the price of gasoline throughout the Pacific Coast states, Alaska and Hawaii. Producers of heavy crude oil received an increase of 5 cents per barrel as compared with an increase of 3 cents per barrel at the last previous change.

SAN JOAQUIN VALLEY

Standard Oil Co. extended productive limits of the Southeast Coalinga field of Fresno County by completing 48-31-B fee in 31-19s-16e flowing 3,833 bbl. of 28.8-gravity oil and 2,463,000 cu. ft. of gas daily from the Gatchell oil zone with bottom of the hole at 8,206 ft. It is one of a group of wells that Standard Oil Co. is starting in the interval between the Northeast and Southeast Coalinga fields. This drilling will prove definitely whether or not the fields join and also whether the productive zones are continuous. The interval between the fields is about 1 mile and, while all available data tend to indicate that these fields will meet, it still remains to be definitely determined. The Northeast and Southeast Coalinga fields are sometimes designated as the Coalinga Eocene but this is generally regarded as being too broad and may prove confusing especially if Eocene production should later be developed in the old Coalinga field.

The condition in the Coalinga district where indications point to a probable joining of two productive areas is similar to conditions existing in the Coles Levee and Tupman fields of Kern County which also appear to be one large field instead of two. The link at Coles Levee and Tupman still remains to be determined as production is still blanked by 1 mile of undeveloped acreage.

There was no change in the Raisin City area in Fresno County during the current week as Shell Oil Co., Inc., continued to core and drill ahead in its 8-18 Properties, Inc., which at last reports was still in Kreyenhagen shale. This wildcat showed production possibilities higher in the hole and may prove to be a discovery.

In the Buttonwillow district of Kern County, Texas Co. has found oil sand in its wildcat test there and while the well showed a steady blow of gas on a formation test the recovery consisted of oil, mud, emulsion and salt water. The company is drilling ahead.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: San Joaquin Valley	7	10,894	60,478
Coastal district	2	2,702	9,690
Los Angeles Basin	5	930	18,403
Recomp.: Los Angeles Basin	3	397	.....
Dry holes: Wildcats	1	.....	5,650
Total	18	14,923	94,221

SAN JOAQUIN VALLEY COMPLETIONS

Southeast Coalinga, Fresno County: R. S. Lytle 44-18-F, 18-20s-16e, flowed 2,600 bbl., 31.5-gravity, 1.1 per cent cut, 1,400,000 cu. ft. gas, 27/64-in. bean, pressures 1,000/1,275 lb., T.D. 7,814 ft., perf. 7,270-7,552 ft., 7,589-7,814 ft., completed in Gatchell oil sand 7,296-7,804 ft., Kreyenhagen 6,118 ft., green sand 7,224 ft., bottomed in siltstone.

Standard 48-31-B fee, 31-19s-16e, flowed 3,833 bbl., 28.7-gravity, 1.2 per cent cut, 2,463,000 cu. ft. gas, 56/64-in. bean, pressures 750/1,245 lb., T.D. 8,206 ft., perf. 7,780-8,201 ft., completed in Gatchell oil sand 7,785-8,206 ft., Kreyenhagen 6,491 ft., green sand 7,698 ft.

Coles Levee, Kern County: Ohio 16-F Kern County Land, 11-31s-25e, flowed 881 bbl., 34.1-gravity, 2 per cent cut, 931,000 cu. ft. gas, 48/64-in. bean, pressures 300/850 lb., T.D. 9,920 ft., 100-mesh perf. 9,552-9,891 ft., completed in Stevens oil sand 9,540-9,920 ft., Schlumberger N point 9,370 ft.

Greeley, Kern County: General Pet. Corp. 1 Mitchel, 1-29s-25e, flowed 2,000 bbl., 38.6-gravity, 0.5 per cent cut, 1,750,000 cu. ft. gas, 18/64-in. bean, pressures 1,300/1,300 lb., T.D. 11,490 ft., perf. 11,373-11,488 ft., completed in Rio Bravo and Vedder zones of Miocene age, Rio Bravo oil sand 11,384 ft., Vedder oil sand 11,460 ft., shut in immediately subsequent to completion.

General Pet. Corp. 4 Oughton, 12-29s-25e, flowed 1,200 bbl., 38.7-gravity, 0.6 per cent cut, 1,350,000 cu. ft. gas, 18/64-in. bean, pressures 1,300/1,350 lb., T.D. 11,500 ft., perf. 11,358-11,499 ft., completed in Rio Bravo zone 11,358 ft. and Vedder zone 11,417-11,500 ft., Olcese zone 10,578-10,711 ft.

Kettleman North Dome, Fresno County: Standard 72-33-J-E fee, 33-21s-17e, flowed 130 bbl., 48.6-gravity, 25 per cent cut, 1,521,000 cu. ft. gas, 20/64-in. bean, pressures 3,050/3,325 lb., T.D. 10,060 ft., perf. 9,787-10,055 ft., completed in McAdams oil sand 9,763-10,060 ft., Kreyenhagen 8,785 ft.

Round Mountain, Kern County: Trico O. & G. Co. 7 Coffee, 8-28s-29e, pumped 250 bbl., 17.1-gravity, 3 per cent cut, elev. 811 ft., T.D. 1,488 ft., 100-mesh perf. 1,388-1,488 ft., completed in Vedder sand 1,400-80 ft., bottomed in Vedder silt.

LOS ANGELES BASIN

Drilling operations are showing a consistent increase in the Inglewood and Dominguez fields in Los Angeles Basin and both are expected to show further increases in the next several weeks. The gain shown by the Inglewood field reflects the discovery a few months ago of Miocene production in the northwestern end of the structure. To date most of the drilling started at Inglewood has been in the northern end of the field but it is expected that the scope of work will broaden out after another completion or two. This expected increase is due to the fact that operators holding adjacent acreage will be obliged to undertake offset drilling to prevent drainage. This means that Standard Oil Co., Shell Oil Co., Inc., Tide Water Associated Oil Co. and others will resume drilling operations in a field that has been relatively quiet for a number of years. Texas Co. which holds acreage adjoining the Smith lease of Federal Oil Co. has already started offset work and will increase drilling operations if the first well proves commercially productive.

Three wells in the northwest end of the Inglewood field are within striking distance of the Miocene pay and should be finished within a relatively short time. Jefferson Oil Co. has scheduled its 1 Smith for completion for June 1 and will probably have this new well running into tanks along about that time as the bit was going ahead a few days ago at 7,425 ft. R. R. Bush Oil Co. is making good progress with 1 Merchants and 1 Smith and both wells should be ready for production tests within another 2 weeks. There is a very hard streak at the base of the Pliocene in this field but after that is drilled through the going is relatively easy.

Federal Oil Co. should also have another well ready for a production test within a few weeks and Texas Co. which has been held up with a fishing job for a week should reach the pay about the same time. Production resulting from development of the Miocene in the Inglewood field is not expected to cause any great threat to the curtailment inasmuch as most of the acreage is held by large operators. The acreage along the northwest edge of the field, however, may cause some overproduction.

Drilling operations in the west end of the Dominguez field should result in the completion of another new well within the next 15 days and this will be followed by a succession of completions extending over several months if the oil sand is able to sustain intensive development. The productivity of this area, which is located on the nose of the Dominguez structure, remains to be determined but on the basis of a 30-ft. oil sand operators can not expect very much of a recovery.

This is especially true if Union Oil Co. proceeds to drill a series of offsets along the east boundary of leases now being developed. It is not likely that Union will offset well for well but will undoubtedly drill several wells along the west line of its Austin lease in order to prevent drainage. The outer limits of production in the western end of the Dominguez structure remain undetermined but it is questionable whether production will be found much farther west than Main Street. The extension well of Hiles Drilling Co. was completed in the seventh Callender zone but there is a strong possibility that a much greater thickness of oil sand will be found south of this well and north of Victoria Street.

LOS ANGELES BASIN COMPLETIONS

Dominguez field, Los Angeles County: Shell 114 Reyes, 34-3s-13w, gas lift 271 bbl., 28.9-gravity, 5 per cent cut, 705,000 cu. ft. net formation gas, T.D. 4,220 ft., perf. 3,835-3,966 ft., 3,976-4,020 ft., 4,033-4,118 ft., 4,130-65 ft., 4,175-4215 ft. completed in first Callender zone.

Long Beach field Los Angeles County: Shell 8 Wilbur, 29-4s-12w, pumped 122 bbl., 27.1-gravity, 2.1 per cent cut, T.D. 3,480 ft., perf. 2,855-3,047 ft., 3,067-3,080 ft., 3,105-3,135 ft., 3,155-3,240 ft. 3,255-95 ft., 3,313-3,474 ft., completed in Alamitos zone.

Malibu district, Los Angeles County: Sovereign Oil Corp. 1 Malibu, 7-2s-18w, abandoned, T.D. 5,650 ft., bottomed in basement schist, two formation tests 4,870-4,980 ft. showed no oil or gas.

Wilmington field, Los Angeles County: Anchor Oil Co. 1 L. A. C. Y., 34-4s-13w, pumped 96 bbl., 14.9-gravity, 10 per cent cut, T.D. 3,545 ft., gravel-packed perf. 3,245-3,540 ft., completed in Ranger zone.

O'Kane & Brain 1 Mason, 33-4s-13w, pumped 72 bbl., 14.4-gravity, 5 per cent cut, T.D. 3,401 ft., perf. 3,059-3,399 ft., recompleted in Ranger zone after redrilling and deepening from 3,391 ft.

Pet. Management Corp. 16 Harbor, 32-4s-13w, flowed 166 bbl., 16.4-gravity, 4 per cent cut, T.D. 3,708 ft., perf. 3,020-3,295 ft., 3,400-3,707 ft., completed in Ranger zone.

Sonwell Oil Co. 5 Harbor, 2-5s-13w, flowed 250 bbl., 29.1-gravity, 1.5 per cent cut, 24/64-in. bean, tubing pressure 155 lb., T.D. 4,016 ft., redrilled to 3,967 ft., perf. 2,541-2,890 ft., 3,660-3,956 ft., recompleted in Ranger zone after redrilling to 3,967 ft. and gravel packing.

Union Pacific R. R. 32-E, 3-5s-13w, flowed 275 bbl., 27.5-gravity, 0.2 per cent cut, 25,000 cu. ft. gas, 38/64-in. bean, pressures 590/400 lb., T.D. 3,450 ft., perf. 2,511-89 ft., 2,618-70 ft., 2,689-2,714 ft., 2,991-3,113 ft., 3,144-3,260 ft., 3,290-3,340 ft., 3,352-3,444 ft., completed in Ranger and Terminal zones.

Universal Con. Oil Co. 5 Newport, 2-5s-13w, pumped 75 bbl., 17.2-gravity, 5 per cent cut, T.D. 4,156 ft., redrilled to 3,090 ft., perf. 2,722-2,845 ft., 2,934-3.005 ft., 3,030-83 ft., recompleted in Ranger zone after hole redrilled to 3,090 ft. and gravel packed.

COASTAL DISTRICT

The most important development in the Coastal district during the week was the finding of a deeper and possibly productive oil sand in the Oak Canyon field by Western Gulf Oil Co. in 2 Lechler. This well which did not look any too promising a week or so ago and was scheduled to be abandoned topped an oil sand at 6,435 ft. A formation test proved inconclusive but it is the belief of field men that Western Gulf has the makings of at least a small well. The oil appears to be around 22 gravity which is rather low for oil in this section.

The exact formation has not been determined but is believed to be probably the middle Modelo in which event the company still has another 1,000 ft. of possibly productive formation through which to drill. Some iron was lost in the hole at 6,466 ft. but this has been sidetracked and the well is again being drilled and cored ahead. Two wells have been finished in the upper zone to date but neither had sufficient natural gas to flow and were accordingly completed on the beam. These two wells are 1 Lechler the discovery well of Western Gulf Oil Co. and 1 Ram of Hathaway Co. Both are located in 31-5n-17w and produce an oil testing 22.4 gravity along with a large amount of water.

COASTAL DISTRICT COMPLETIONS

Capitan field, Santa Barbara County: Shell 1-34 Covarrubias, 32-5n-30w, pumped 941 bbl., 20.4-gravity, 2.2 per cent cut, T.D. 1,420 ft., perf. 1,302-1,416 ft., completed in Vaqueros oil sand 1,248-1,420 ft.

Ventura Avenue field, Ventura County: Shell 135 Taylor, 29-3s-23w, flow 1,761 bbl., 29.2-gravity, 1.5 per cent cut, 1,885,000 cu. ft. gas, 128/64-in. bean, pressures 300/400 lb., T.D. 8,562 ft., P.B. 8,270 ft., perf. 7,171-7,320 ft., 7,361-7,540 ft., 7,582-8,057 ft., 8,097-8,270 ft.

COASTAL DISTRICT WILDCATS

Castaic district, Los Angeles County: Barnsdall 1-17-A Honor rancho, 5-4n-16w, T.D. 4,717 ft. in tight oil sand, temporarily suspended, excellent gas showings since leaving 2,250 ft., will drill second test, elev. 1,317 ft.

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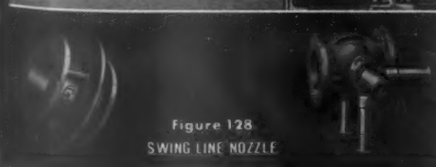

Figure 128
SWING LINE NOZZLE

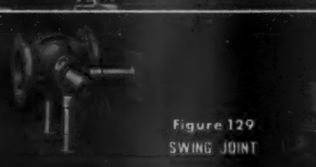

Figure 129
SWING JOINT

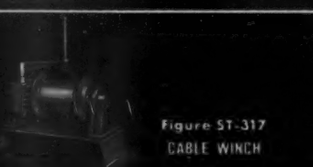

Figure ST-317
CABLE WINCH

Figure 130
CABLE SHEAVE BRACKET

Figure 135
GAS TIGHT CABLE SHEAVE CASE

SHAND & JURS

New Cypress Sand Pool Is Indicated in Posey County

By STAFF CORRESPONDENT

EVANSVILLE, Ind., May 26.—Whisenant & Trenchard, who recently completed the first successful Devonian producer in the Louden field of Fayette County, Illinois, also appear to have opened a new Indiana field with their 1 Florence McFadden, SW NW SW 16-6s-14w.

The well, located in Black Township of Posey County, made about 75 ft. of oil and oil-cut mud, including 12 ft. of free oil, during a drill-stem test of Cypress saturation at 2,477-2,505 ft. However, operators are drilling ahead to test the Aux Vases sand.

Also in Posey County, Gulf Refining 1 Henry Wedeking, SE SE SE 23-6s-13w, drilled plug to a depth of 2,403 ft., and was being cleaned out and deepened to original total depth of 2,509 ft., with about 400 ft. of oil in the hole. As far as is known, the well, producing from the Cypress sand, is making no water.

SPENCER COUNTY.—A new test was started in Spencer County last week when George Hedges spudded 1 A. Eble, SW NW NW 7-7s-7w. This test, which is about ¼ mile east of Ladmer 1 Kennard, recent Waltersburg sand producer completed for about 35 bbl. a day on pump, is one location north of a dry hole drilled about 2 years ago by the Sycamore Oil Co. on the Prudential Life Insurance Co. lease.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Indiana			
Oil wells	10	695	18,112
Dry holes	6	.....	10,799
Total	16	.....	28,911
Ohio			
Oil	6	73	5,641
Gas	12	*14.3	28,543
Dry	10	.....	16,109
Input	4	.....	1,283
Total	32	.....	51,576
Recompletions (gas)	1	.....	.....
Eastern Kentucky			
Gas wells	12	*4.87	35,627
Dry holes	1	.....	1,260
Total	13	.....	36,887
Western Kentucky			
Oil wells	2	65	2,209
Dry holes	5	.....	4,134
Total	7	.....	6,343

*Million cu. ft.

INDIANA COMPLETIONS

Daviess County

Cannelburg: J. W. Cannon 7 Evans, S½ SE SE NE 8-2n-5w, pumped 20 bbl., natural, pay 600-24 ft., T.D. 624 ft.

Gibson County

Griffin: Hall Edwards 26 Maier, NE NW NW 13-3s-14w location abandoned.
Continental 35 Bozeman, NE SE SW 23-3s-14w pumped 138 bbl., natural, T.D. 2,848 ft., P.B. 2,782 ft.
Continental 33 Bozeman, NE NE SE 23-3s-14w, pumped 70 bbl., 3,000 gal. acid, T.D. 2,884 ft., P.B. 2,854 ft.
Continental 38 Bozeman, NW NE SW 23-3s-14w, pumped 23 bbl., 3,000 gal. acid, Ste. Genevieve 2,803 ft., T.D. 2,881 ft.
South Griffin: Continental 34 Bozeman, SE NE NW 25-3s-14w, dry, T.D. 2,910 ft.
Hall Edwards 25 Maier, NW NW NW 13-3s-14w, location abandoned.
Wildcat: Woodruff 1-A Hall, SW NW SW 31-2s-12w, location abandoned.

Huntington County

Wildcat: Beauchamp 1 Mayer Grain, SE NW SW 22-29n-8e, dry, T.D. 1,219 ft.

Posey County

Heusler: R. B. Creager et al 1 Wilborn, NW SE NE 1-7s-12w, pumped 135 bbl., 30-qt. shot 1,713-28 ft., T.D. 1,728 ft.
South Griffin: Arrow Drlg. et al 5 Pocket Realty, SE SE SW 35-3s-14w, dry, T.D. 230 ft., will not drill deeper.
Arrow Drlg. et al 3 Pocket Realty, W½ NW SW SE 35-3s-14w, dry, Ste. Genevieve 2,880 ft., T.D. 3,024 ft.
East Calvin: Tide Water 7 Doll, S½ SW SW SE 33-3s-14w, flowed 200 bbl., 30-qt. shot 2,788-2,800 ft., T.D. 2,800 ft.

St. Joseph County

Wildcat: J. H. McLean 1 Wordens, NE NW NE 20-38n-4e, dry, Traverse 549 ft., Traverse lime 587 ft., water 640-43 ft., T.D. 643 ft.

Spencer County

Wildcat: Ladmer et al 1 Cokes, N½ SE NE NE 12-7s-8w, pumped 32 bbl. oil and 1 bbl. water, natural, pay 1,044-47 ft., T.D. 1,047 ft.
Texas 1 Scamahorn, SW NE NW 29-7s-6w, flowed 25 bbl. oil daily with 250,000 cu. ft. gas, pay 915-19 ft., T.D. 919 ft.

Sullivan County

Wildcat: G. W. Boyce et al 1 Kelly, SW SW NE 10-8n-11w, dry, water 2,741 ft., T.D. 2,773 ft.

Vanderburg County

Vienna: James W. Havens 2 Dye, S½ NW SE NW 31-5s-11w, pumped 10 bbl., 100-qt. shot 1,187-1,219 ft., T.D. 1,222 ft.
Wildcat: T. W. Drake 1 Nurrenbern, SW NW NW 5-7s-11w, pumped 42 bbl., 80-qt. shot 1,117-59 ft., T.D. 1,159 ft.

OHIO FIELDS

ZANESVILLE, Ohio, May 26.—Completion of a gas well gaging 11,000,000 cu. ft. daily from the Clinton,

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LEVELLAND, TEXAS Tel. 284—P. W. Morrison
DENVER CITY, TEXAS Tel. 54—J. Roy Derrick

12 miles southeast of Zanesville, just north of Muskingum on the Morgan County line, has spurred development here. This is the largest Clinton sand gas well to be completed in the Ohio-Clinton fields for several years. The Clinton horizon in this vicinity ranges between 4,000 and 4,200 ft.

WAYNE COUNTY.—The Ohio Oil Co. 8 J. H. Armstrong, Section 14, Wooster Township, is shut down for orders at 6,116 ft. after encountering water. A sandy-lime formation was logged at 5,722 ft. to 6,116 ft., with about 1 bbl. of oil showing at 5,763 ft. and 5,799-5,802 ft.; a small amount of water at 6,018-25 ft. with the hole filling up 500 ft. with water in 24 hours at 6,095-98 ft.

CAMBRIDGE ARCH.—Ohio Oil Co. 1 R. Marshall, Section 16, Adams Township, Guernsey County, is drilling just above the Clinton at 4,510 ft. Lime was logged at 3,253-4,392 ft.

SOUTHEAST OHIO.—The deep test of the Natural Gas Co. of West Virginia on the W. Watson farm, Section 25, Wayne Township, was drilled through the Oriskany sand and was dry. Corniferous lime was topped at 4,167 ft.; Oriskany sand 4,421-50 ft., and it was bottomed at 4,460 ft.

OHIO COMPLETIONS

Ashland County

Lake Township: J. H. Hoag 1 A. J. Metcalf, Sec. 22, dry, Berea, T.D. 757 ft.

Athens County

Bern Township: Bern O. & G. Co. 3 A. D. McCune, Sec. 18, 500,000 cu. ft. gas, second Cow Run, T.D. 818 ft.
Canaan Township: Ohio Fuel 1 R. A. Smith, Sec. 5, 450,000 cu. ft. gas, Keener, T.D. 1,012 ft.
Rome Township: Ohio Fuel 1 F. G. Loehler, Sec. 32, 25,000 cu. ft. gas, shot, second Berea, T.D. 1,415 ft.
Williams et al 4 G. H. Leslie, Sec. 16, dry, Maxon (water), T.D. 874 ft.

Jefferson County

Island Creek: John M. Elliott Oil Co. 1 Harry and Mervin Lee, NE Sec. 34, dry, Berea, T.D. 1,430 ft.

Knox County

Jackson Township: Kundtz Hulse, Inc., 7 Lovey A. Stone, NE Sec. 10, 4 bbl., Clinton sand, T.D. 3,203 ft., swabbed 12 bbl. 3 days and 20 bbl. 10 days after shot.
Union Township: H. E. Perkins 4 Charlotte Mickley, Sec. 5, 750,000 cu. ft. gas, Clinton, T.D. 2,752 ft.
Upham Gas 1 Julius Smith, Sec. 23, dry, Clinton, T.D. 2,945 ft.

Licking County

Mary Ann Township: Allen Willey 2 William Stricker, Sec. 17, dry, Clinton, T.D. 2,608 ft.
Copper Head Oil & Gas Co. 3 H. O. Thompson, Sec. 9, 9 bbl., Berea, T.D. 598 ft.
Newark Township: Lacknett et al 2 Elliot Fory, first quarter, 330,000 cu. ft. gas, shot, Clinton, T.D. 2,581 ft.
C. A. Davis 1 Ramey Wahl, first quarter, 150,000 cu. ft. gas, shot, Clinton, T.D. 2,430 ft.
Everette Co. 5 Mound Mortgage Co., first quarter, 40,000 cu. ft. gas, Clinton, plugged, T.D. 2,408 ft.
Hoover Bros. 1 C. E. Hays, first quarter, show gas, Clinton, plugged, T.D. 2,411 ft.

Lorain County

Penfield Township: William Dempsey 4 E. M. Bunt, dry, Berea, T.D. 183 ft.

Meigs County

Rutland Township: Downie et al 1 S. A. Ward, Sec. 31, 275,000 cu. ft. gas, M-800 ft. sand, T.D. 678 ft.

Medina County

Chatham Township: Marine Trust Co. A48 Carl G. Packard, Tr. 14, Lot 4, 5 bbl., Berea, T.D. 440 ft.
Marine Trust Co. A53 Carl G. Packard, 5 bbl., Berea, T.D. 434 ft.
Marine Trust Co. A54 Carl G. Packard, 5 bbl., Berea, T.D. 470 ft.
Marine Trust Co.. O52 Carl G. Packard, input, Berea, T.D. 400 ft.
Marine Trust Co. O56 Carl G. Packard, input, Berea, T.D. 430 ft.
Marine Trust Co. O55 Carl G. Packard, input, Berea, T.D. 434 ft.
Marine Trust Co. O69 Carl G. Packard, input, Berea, T.D. 419 ft.
Granger Township: M. L. Packard et al 5 John Crocker, Lot 25, 45 bbl., Berea, T.D. 496 ft.

Monroe County

Malaga Township: Huntsman & Peters 2 William Peters, Sec. 22, 30,000 cu. ft. gas, shot, Berea (drilled deeper from Salt sand), T.D. 2,007 ft.

Muskingum County

Harrison Township: Gas Producing Co. of Ohio 2 R. H. Finley heirs, SE Sec. 7, dry, through Medina, T.D. 4,205 ft., had a light showing of oil in Medina, being plugged.
Brush Creek Township: Industrial Gas Corp. 1 H. W. Palmer, Sec. 15, 11,000,000 cu. ft. gas, Clinton 4,116-49 ft.

Noble County

Center Township: Smithberger et al 1 Hugh Cox, Sec. 19, dry, no Berea (shallow gas exhausted), T.D. 1,625 ft.
Seneca Township: J. T. Watson 1 J. W. Yoho, Sec. 21, 50,000 cu. ft. gas, shot, Berea, T.D. 1,475 ft.
Sharon Township: John Cisler 1 Clifford Marquis, Sec. 7, dry, M-800 ft. sand (water), T.D. 868 ft.

Stark County

Perry Township: Lyons et al 2 Alfred Fasnacht, Sec. 3, 600,000 cu. ft. gas, Clinton, T.D. 4,382 ft.

Tuscarawas County

Sandy Township: Natural Gas Co. of W. Va. 1 B. McFeeders, Sec. 15, Lot 31, 80,000 cu. ft. gas, shot, Clinton, T.D. 4,921 ft.

Washington County

Salem Township: Reese Ward 1 Charles Still, Lot 189, 50,000 cu. ft. gas, shot, Berea, T.D. 1,930 ft.

EASTERN KENTUCKY

ASHLAND, Ky., May 26.—Gas-well completions take the spotlight in eastern Kentucky this week with 13 wells being completed. The total production for the 12 producing wells is 4,868,000 cu. ft. of gas daily. A midmonth report cites the increase in operations in this sector and drilling operations in two or three counties are significant.

Cumberland Petroleum has shut down indefinitely 44 L. C. Bailey at State Road Fork in Magoffin County. This is a deep test with several firms aiding in the financing. Operations halted at the 5,080-ft. level and reliable information indicates that it will be impossible to drill much deeper with the rig being used at present. It is also understood that the drilling line will have to be repaired if drilling continues. No. 44 is only a short distance from the original discovery well in the Oil Springs pool.

Warfield Natural Gas Co. is down 150 ft. in 5013 Amy Parsley on Blacklog Fork in Martin County. This well is only ¼ mile from the wildcat Virginian Gas well drilled in recently with a 25-bbl.-per-day production. This is in a new territory about 3 miles southeast of Inez.

EASTERN KENTUCKY COMPLETIONS

Floyd County: Kentucky-West Virginia 617 Chris Goble, on Buffalo Creek, T.D. 1,458 ft., Big lime, 1,081,000 cu. ft. gas, R.P. 300 lb.
Kentucky-West Virginia 601 Crit Mitchell, Mud Creek, T.D. 3,080 ft., shale, 58,000 cu. ft. gas, R.P. 300 lb. 48 hr.
Kentucky-West Virginia 5290 Martha Alley, Frazier Creek, T.D. 3,261 ft., shale, 189,000 cu. ft. gas, R.P. 371 lb., 36 hr.
Warfield 4990 Elkhorn Coal Co., Little Mud Creek, T.D. 2,677 ft., shale, 310,000 cu. ft. gas.
Warfield 4993 Elkhorn Coal Co., Big Branch, T.D. 2,961 ft., shale, 84,000 cu. ft. gas.

(Continued on Page 77)

BUCYRUS ERIE
36-L
SPUDDER will pull 4200 pounds of tools from 3000 feet . . .
in 8 minutes
The bull reel is gear driven, free wheeling, with two speeds forward and one reverse. The 13⅛" steel barrel is 44½" long with 45" diameter steel flanges. Located at each end are big, wide brakes — two of them with equalizer — each 42" by 6". Bands are faced with ½" asbestos blocks giving smooth, accurate control. Spooling capacity without divider for 4,900' of 1", 6,900' of ⅞", 9,400' of ¾" wire line. Divider reduces capacity approximately 6%. Hoisting capacity to 28,900 lbs. in low gear, 13,300 lbs. in high gear. Average line speed 375 ft. per minute in high gear.
CAPACITY To 28,900 lbs.
BIG TWIN BRAKES
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SOUTH MILWAUKEE, WISCONSIN

Mississippian Lime Pool Is Opened in Antelope Area

By
R. MARNE SANFORD

WICHITA FALLS, Tex., May 26.—Leading the development of the week was the opening of a new deep Mississippian lime field in southwestern Clay County's Antelope area. Also indicating a new strike in the Ellenburger lime was a wildcat in Cooke County.

The Clay County discovery was the second Mississippian lime producing spot to be opened in the county this year. The discovery well was Shell 9 Henderson, in Block 2605, T.E.&L. Survey, in the company's multiplay Strawn sand field opened last year. The new deep-level strike is bottomed at 5,930 ft., plugged back from 6,100 ft. in the Ellenburger lime. Casing was perforated from 5,715-60 ft. and after a 2,000-gal. acid treatment the well began to flow. After cleaning itself the well gaged 266 bbl. of oil in 1 hour and 50 minutes, with no water showing. Storage was being erected at last reports and final gaging is expected this week.

The discovery is about 20 miles southwest of the Shell 1-A Coleman, Mississippian lime discovery in the Calhoun County School Lands Survey southeast of Henrietta, about 2 months ago. It is also about 20 miles northeast (and on a direct line between the two) of the Burns 1-A Larimore, Mississippian lime discovery in the Olney area of Young County about a month ago. Shell Oil Co. staked several offset locations for immediate drilling soon after completion of its first Clay County discovery, and likewise some 6 new tests are starting in the Larimore area of Young County. For this reason new development to the Mississippian lime is expected at once in the Antelope area. At least one operator is already making plans to reenter and deepen an old outpost failure in search of the deeper pay.

SUMMARY OF COMPLETIONS

Northern Texas

	No.	Bbl.	Footage
Oil: Walnut Bend	2	494	9,798
K.M.A. field	4	1,375	13,681
Other fields	16	2,489	32,424
Dry: Fields	10	.....	13,992
Wildcats	3	.....	7,161
Total	35	.....	77,056

West Central Texas

Oil: Novice field	2	469	7,191
East Noodle Creek	2	863	5,473
Other fields	1	118	2,235
Dry: Fields	1	.....	932
Wildcats	8	.....	14,343
Total	14	.....	30,174

Ellenburger Strike Indicated

In the recently opened 1,850-ft. Bindel field of Cooke County, the discovery operator, Texas Co., is preparing to drill plug in a prospective deeper Ellenburger lime discovery. The test is 1 Flietman, W. Simpson Survey, a west offset to 1 Bindel which opened the field. No. 1 Flietman topped the Ellenburger lime at 3,241 ft. and drilled to 3,146½ ft., where a 30-minute drill-stem test recovered 230 ft. of oil and 60 ft. of oil-cut mud. The 7-in. casing was cemented on top of the lime and plug is to be drilled this week.

The Bindel area is about 5 miles northwest of the Voth field, which produces from Ellenburger at 1,800 ft. The Voth field is on top of the Muenster arch, while the Bindel area is down the southwestern flank. Ellenburger production throughout Montague County is found below the 5,500-ft. level, it being in the Fort Worth syncline.

Immediate Development for 2 Recent Strikes

Three offsets to Sinclair Prairie 1 Clingingsmith, which recently opened a new deep conglomerate field in Montague County, have been staked by the discovery company. The field is located about 3 miles south west of the Rogers & Rogers field in the western part of the county. A southwest offset to the discovery is 1 E. M. Hobbs, 330 ft. from the north and east lines of Section 170, H. H. Belcher subdivision of the J. Olibarri Survey. A south offset to the discovery is 1 F. Lemon, 330 ft. from the north and west lines of Section 171, and a west offset is 1 J. W. McCall, 330 ft. from the south and east lines of Section 150.

The discovery well was completed for 145 bbl. in 3 hours, flowing, from pay in the Bend conglomerate section from 6,119-31 ft. This field, incidentally, is the deepest producing spot in North Texas.

The recently opened Mississippian lime producing spot by L. T. Burns 1-A Larimore, in Young County, now has seven new tests surrounding the strike. L. T. (Bobby) Burns, field discoverer, staked location for four new sites while three outposts were already drilling. Burns located 1 S. J. Allison, 341 ft. from the west and 467 ft. from the north lines of the north 40 acres of Section 150, T.E.&L. Survey, Abstract 397, as a west offset to the strike; No. 2 Allison is 467 ft. from the north and 1,123 ft. from the east lines of the same section. On the E. J. Larimore lands Burns staked No. 2-A, which is 467 ft. from the north and 1,160 ft. from the west lines of the east 200 acres of Section 150; and No. 3-A, which is 467 ft. from the north and 450 ft. from the east lines of the same tract.

North of the discovery Shell 1-A Bloodworth, Section 151, T.E.&L. Survey, a 6,200-ft. test, is drilling below 3,000 ft. About a mile west and slightly north of the discovery Consolidated Oil and Ray Oil 1 J. P. Dunigan, Section 163, T.E.&L. Survey, has been spudded on a Mississippian lime contract. About ⅛ mile west of the strike King Oil and Phillips Pet. 9-Deep J. B. Daniels, southeast part of Section 164, T.E.&L. Survey, has erected derrick and is moving in machinery.

NORTH TEXAS COMPLETIONS

Archer County

Hull-Silk: Dillard, White & Duncan 15 Nichols, dry at 515 ft.

J. H. Massie 8 Wilson, 42 bbl. in 3 hr., ¾-in. choke, natural, est. 175 bbl. daily, 3,791-3,800 ft.

Griffin: J. E. Kadane 3 Griffin A, 133 bbl. in 3 hr., ¾-in. choke, est. 750 bbl. daily, 4,328-46 ft.

Miscellaneous: Henry Grace 2 Wilson, 150 bbl., pumping, natural, 1,530-36 ft.

Clay County

Antelope: Shell 16 Henderson, 179 bbl. in 8 hr., 2-in. casing outlet, est. 425 bbl. daily, perf. casing 3,177-92 ft., T.D. 3,202 ft.

Miscellaneous: C. Y. Gorman 1 Taylor 40, 35 bbl. daily, pumping, natural, 1,120-37 ft.

Gorman & Norwood 7 Taylor, dry at 1,150 ft.

George G. Golden 3 Enyart, 5 bbl., pumping, natural, 270-78 ft. and 309-15 ft.

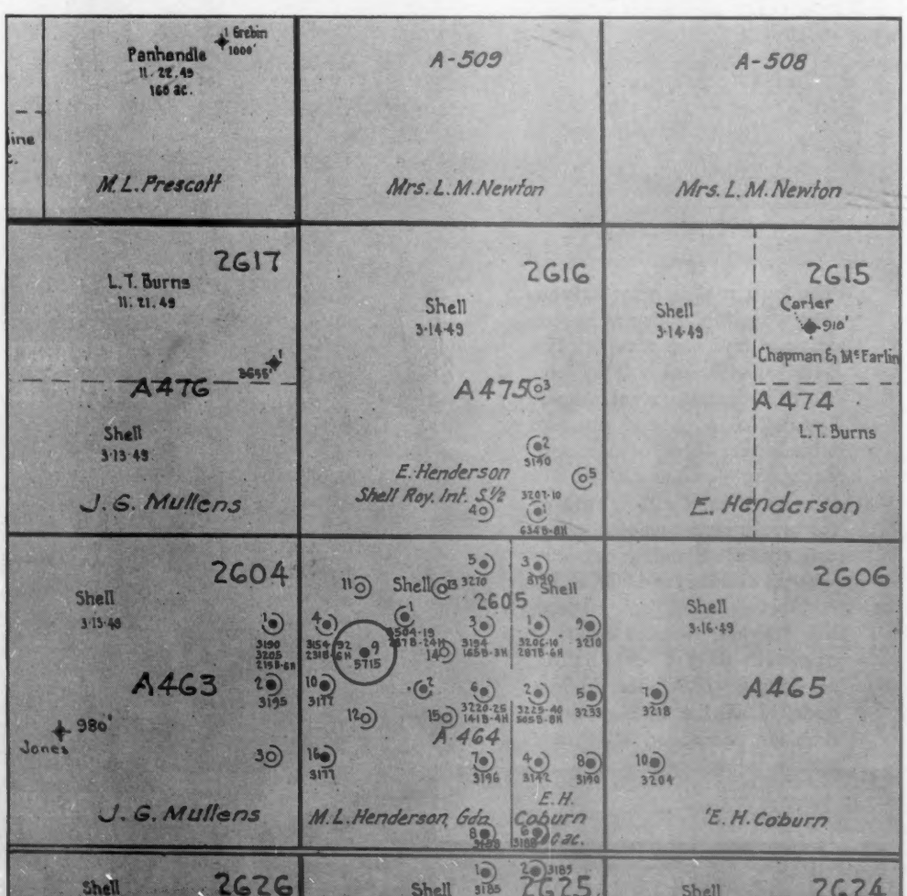
Jack County

Wildcat: Adam Grafe 1 Bloodworth, Wm. McDonald Sur., Abst. 380, abandoned location.

Bryson: Paul Steed 1 Helvey, dry at 3,283 ft.

Cooke County

Walnut Bend: Sinclair Prairie 20 McGeorge, 194 bbl. daily, pumping, natural, perf. casing 4,685-4,702 ft., T.D. 4,950 ft.



Heydrick Mapping Co., Wichita Falls

Opening the second deep horizon in the Antelope field of southern Clay County the Shell Oil Co., Inc., has gaged its 9 Henderson for 266 bbl. of oil in 1 hour and 10 minutes from pay drilled from 5,716-60 ft. The other pay levels in the field are at 3,200 ft. and 3,500 ft. New development is expected at once to this deepest level

Magnolia 15 Ramsey, 62 bbl. in 3 hr., open tubing, natural, est. 300 bbl. daily, 4,831-48 ft.
Miscellaneous: Metzner & McKee 2 Hess, dry at 845 ft.

Montague County

Nocona: Claymont Oil 4 Bouldin A, 10 bbl. daily, pumping, 15-qt. shot, 798-819 ft.
Bowers: Lawrence S. Flannery 2 McLaughlin, 40 bbl. daily, pumping, granite wash pay 3,581-3,614 ft.
Rogers & Rogers: Carnation Oil 1 M.K.T., 167 bbl. in 3 hr., ¾-in. choke, est. 750 bbl. daily, perf. casing 5,246-52 ft. in conglomerate section, T.D. 5,355 ft.

Wichita County

K.M.A.: King Oil 7 Waggoner, 47 bbl. in 3 hr., 25/64-in. choke, 60-qt. shot, 3,760-88 ft.
Deep Rock Oil 9 Hamilton, 78 bbl. in 3 hr., ½-in. choke, est. 250 bbl. daily, 3,685-3,794 ft.
Coleman & Coppock 4 Warren, 75 bbl. daily, pumping, natural, 1,760-69 ft.
Fain-McGaha Oil 4 Ellen. Griffin, 291 bbl. in 3 hr., ¾-in. choke, est. 875 bbl. daily, top Ellenburger 4,315 ft., pay 4,315-30 ft.
Wildcat: Chas. E. Morrison 1 Cooper, Henry Hastie Sur., Abst. 92, dry at 1,355 ft.
Miscellaneous: Akin, Dimock & Costley 7 Dodson, 18 bbl. daily, pumping, natural, 1,313-21 ft.
Akin, Dimock & Costley 5 Oats A, 25 bbl. daily, pumping, natural, 1,291-1,303 ft.
K. D. Harmon 1 J. W. Snow, dry at 2,015 ft.
L. M. Christoph 1 Fisher, 6 bbl. daily, pumping, natural, 845-59 ft.
J. W. Carter 1 Roller, 8 bbl. daily, pumping, natural, 491-94 ft.

Wilbarger County

Wildcat: Wilcox Oil & Gas 1 Waggoner, SE SW Sec. 43, Blk. 2, H.&T.C. Sur., top Canyon 2,810 ft., K.M.A. lime 4,015 ft., Caddo 4,324 ft., Mississippian 4,828 ft., Ellenburger 4,900 ft., dolomite 5,056 ft., dry at 5,056 ft.
Miscellaneous: Consolidated Oil 1 Waggoner, dry at 3,268 ft.
Staley & Wynne 24 Waggoner, 10 bbl. daily, pumping, 40-qt. shot, 1,861-75 ft.

Young County

Olney: Graham Royalty 2 Keen, 7 bbl. daily, pumping, natural, 902-09 ft.
W. F. Collins 1 Moore, dry at 651 ft.
J. W. Sparks 1 Gilbert, dry at 902 ft.
Burma Pet. 7 Dunagan, dry at 977 ft.
J. Watson 1 Belknap, dry at 750 ft.
Wildcat: H. N. Tucker 1 Freeze, Sec. 1443, T.E.&L. Sur., dry at 750 ft.

WEST CENTRAL TEXAS

FORT WORTH, Tex., May 26.—Wildcat locations and new development for recently opened fields featured the week's work in the West Central Texas district. There were exploratory tests staked in Callahan, Shackelford, Stephens, Taylor and Jones counties, while second tests were reported for one-well field discoveries in Jones and Palo Pinto counties.

CALLAHAN COUNTY.—Rhodes Drilling Co. was moving in rotary for a Palo Pinto lime wildcat test in Callahan County and about 10 miles southeast of Abilene. It is to be drilled for Merry Brothers and Perini as 1 Sam DeSpain, located 467 ft. from the south and east lines of the tract in Section 32, Block 8, S.P. Survey. It is about 1½ miles east of an Ellenburger lime failure drilled by Roeser & Pendleton, Inc., in 1939.

Another new wildcat for the county is Ungren & Frazier and George Wittmer 1 C. D. Russell, 300 ft. from the north and 1,000 ft. from the west lines of a 60-acre tract in Section 118, B.B.B.&C. Survey, about 2 miles north of Baird.

SHACKELFORD COUNTY.—T. S. Stanfield has announced location for a planned 950-ft. test a mile north of Albany in Shackelford County. It will be 1 P. S. Fincher, 150 ft. from the east and 1,350 ft. from the north lines of a 100-acre lease in Section 7, T.&P. Survey.

STEPHENS COUNTY.—A new 3,200-ft. Caddo lime wildcat test is preparing to get under way in Stephens County. It is E. P. Wilson 1 J. R. Coody, 660 ft. from the east and north lines of a 320-acre tract in Section 47, Block 5, T.&P. Survey, about 2 miles southwest of the town of Caddo.

TAYLOR COUNTY.—In Taylor County a new 3,000-ft. wildcat was starting 5 miles northeast of Merkel at the W. H. Peckham 1 Ruel Perry. Location is 330 ft. out of the northwest corner of a 56-acre tract in League 124, Grimes County School Lands Survey.

JONES COUNTY.—In Jones County Charles J. Kleiner of Cisco has staked location for a wildcat 2 miles north of Abilene and on the extreme northern line of Jones County. It is 1 I. N. Jackson, 1,000 ft. from the north and 330 ft. from the east lines of a 140-acre lease in Subdivision 9, Alexander Thompson Survey 20.

Also in Jones County W. D. Brookover of San Antonio has spudded his second test in the recently opened Wimberly field located between the Akard and the Stith fields in the southern part of the county. It is 1 Church, 330 ft. from the south and east lines of the Dogwin subdivision, De Witt County School Lands Survey, offsetting Hines & Brookover 1 Wimberly, discovery well of several weeks ago.

PALO PINTO COUNTY.—About 2 weeks ago W. K. Gordon opened a new gas field in Palo Pinto County with the completion of 1 Noland, Section 86, Block 3, T.&P. Survey, for 1,185,000 cu. ft. of gas daily from pay from 3,450-62 ft. shot with 40 qt. During the past week work was started on the operator's second test in the area. It is 1 J. S. Crouch, a 3,500-ft. test located 3,300 ft. from the south and 290 ft. from the east lines of Section 87, Block 3, T.&P. Survey, an offset to the discovery well.

WEST CENTRAL TEXAS COMPLETIONS

Bosque County

Wildcat: T. R. Kendrick 1 Beeker, Geo. Island Sur., Pat. 1-744, dry at 506 ft.

Brown County

Wildcat: Central Texas Gas 1 Smith, Wm. Guyman Sur. 86, dry at 1,868 ft.
Bangs: Hoggan & Stewart 5 Perry, dry at 932 ft.

Coleman County

Novice: Robt. McKissick 9 Morris, 195 bbl. daily, ⅝-in. choke, 10-qt. shot, 3,607-18 ft.
States Oil 9 Morris, 274 bbl. daily, open casing, 3,565-73 ft.
Overall: Anzac Oil 1 Sealey & Smith, new-horizon discovery, 118 bbl. daily, flowing, 1,000 gal. acid, T.D. 2,235 ft., P.B. 2,228 ft., located in Sec. 13, Blk. 1, G.H.&H. Sur.

Callahan County

Wildcat: Clay & Hyer 1 Hennessy, Sec. 83, B.B.B.&C. Sur., dry at 1,820 ft.

Jones County

Wildcat: C. W. and W. L. Snoddy 2 Akins, Sec. 9, Blk. 16, T.&P. Sur., dry at 2,133 ft.
East Noodle: Humble 3 Huddleston, 251 bbl. daily, ½-in. choke, 2,000 gal. acid, 2,415-25 ft.
Humble 1 Gunter, 612 bbl. daily, ½-in. choke, natural, 3,040-48 ft.

Palo Pinto County

Wildcat: P. F. Cole 1 Crawford, Sec. 888, T.E.&L. Sur., dry at 2,210 ft.
Elgin P. Wilson 1 Watson, Sec. 10, Blk. 2, T.&P. Sur., dry at 4,065 ft.

Shackelford County

Wildcat: J. W. Keyes 1 Smalley, Sec. 13, E.T. Sur., dry at 891 ft.
B. & F. Bonded Cotton Warehouse 1 Snyder, Sec. 32, L.A.L. Sur., dry at 850 ft.

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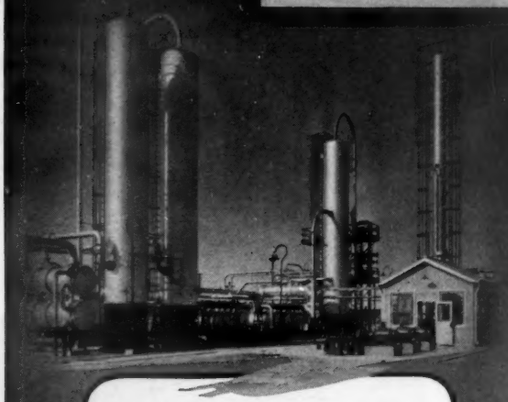

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APPALACHIAN FIELDS

Gas Well Opens Wide Area Southeast of Sandyville

By STAFF CORRESPONDENT

PITTSBURGH, Pa., May 26.—The past week was featured by the wildcat of the Columbian Carbon Co. on the J. R. Sweezy farm in Ravenswood district, Jackson County, which was completed as a large gas well in the Oriskany sand. The Corniferous lime was topped at 4,831 ft. and the Oriskany sand at 4,944 ft. with about 12,000,000 cu. ft. of gas showing in the upper part of the sand which blew open overnight until a control valve was installed. It was tubed at 4,988 ft. and gaged 15,267,000 cu. ft. of gas and the sand had not been completely drilled through. This test is located about 1.43 miles southeast of Sandyville and opens up an extensive area. Additional locations have already been made as offsets.

During the past week 23 operations were completed in the lower eastern fields, of which 1 was dry, 18 gas wells, and 4 oil producers. All districts presented something of interest.

SOUTHWEST PENNSYLVANIA

On Chestnut Ridge in South Union Township, Fayette County, three new locations have been made for deep tests, all of which are south of the Indian Creek Coal Co. test. The Greensboro Gas Co. has a location and clearing ground for a test on the Barton estate. New Penn Development Co., William E. Snee et al made two locations, one on the Kirby estate and the other on the Carothers farm.

SUMMARY OF COMPLETIONS

Southwest Pennsylvania

	No.	Bbl.	Footage
Gas wells	7	*1.2	17,181

West Virginia

Oil wells	4	14	7,153
Gas wells: Kanawha	4	*19.0	13,222
Others	7	*2.2	17,871
Dry holes	1		2,122
Total	16		40,368

*Million cu. ft.

Here Peoples Natural Gas Co. is drilling out cement at 4,893 ft. in 4 Piedmont Coal Co. and drilling at 815 ft. in No. 5, same lease. In North Union Township Wasson & Co. et al have reached 7,314 ft. in 2 J. H. Sorg or 32 ft. in the Oriskany sand. Drilling is during daytime only, which accounts for the small change. It is producing gas which is turned into the lines at night.

On Laurel Ridge in Stewart Township, Fayette County, New Penn Development Co. et al have reached 8,125 ft. in the wildcat on the Gregg L. Neel farm or 75 ft. below the top of the Onondaga chert. So far no gas has been struck. In Maryland, these operators are drilling at 5,280 ft. in the new hole on the Humberson farm on the Accident dome in Garrett County.

In Beaver County L. D. McMichaels et al reached 5,432 ft. in the test on the Elmer Pflug farm on Big Knob in New Sewickley Township and shut down temporarily. With the top of the Onondaga at 5,282 ft. and with glauconite now showing in the lime and that member becoming softer, it is believed to be within a few feet of the caprock of the Oriskany sand. In Center Township St. Joseph Lead Co. is drilling at 1,700 ft. in the test on the J. P. Koehler heirs farm.

Armstrong County

Boggs Township: J. K. Sharp et al 2 James Sefton, 180,000 cu. ft. gas; Hundred-foot sand, T.D. 1,681 ft.
Cowanshannock Township: Equitable 3 Wm. Carroll, 390,000 cu. ft. gas; Bradford sand, T.D. 3,612 ft.

Fayette County

Menallen Township: Nollem Oil & Gas Co. 1 Allen Bair, 497,000 cu. ft. gas; Big Injun sand top 1,194 ft.; T.D. 1,365 ft.; R.P. 445 lb.

Indiana County

Washington Township: T. W. Phillips Gas & Oil Co. 1 J. L. Jones, 52,000 cu. ft. gas; Bradford sand, T.D. 3,254 ft.

Jefferson County

Beaver Township: T. W. Phillips Gas & Oil Co. 1 Fay Plyler, 40,000 cu. ft. gas, Bradford sand, T.D. 3,394 ft.

Westmoreland County

Washington Township: Peoples Natural Gas Co. 1 John W. Elwood, 42,000 cu. ft. gas; Bradford sand, T.D. 3,875 ft.

WEST VIRGINIA

With the completion of the large wildcat by the Columbian Carbon Co. in the Oriskany sand on the J. R. Sweezy farm in Ravenswood district, interest now centers on the scattered other tests drilling practically over the entire district. Joe Rubin et al topped the Corniferous lime at 4,879 ft. in the test on the H. A. and O. H. Maddox farm, set 7-in. casing at 58 ft. in and is hung up pulling the 10-in. string. There are about 13 wells drilling and additional rigs and locations.

Northwest of the Sissonville Oriskany wells in Poca district, Kanawha County, the West Virginia Gas Co. completed a wildcat to the Oriskany sand on the C. F. Hill farm, located about 8.61 miles northwest of Sissonville and in Union district, Putnam County. The Corniferous lime was topped at 5,074 ft.; Oriskany

(Continued on Page 82)

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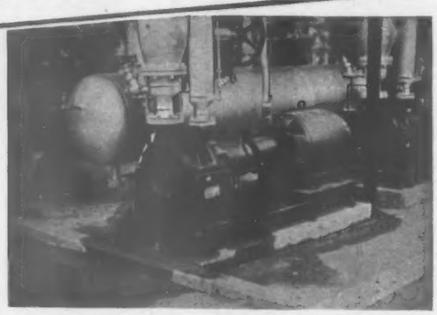

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Wagner HP motors are tested and approved by Underwriters' Laboratories for Class 1 Group D hazardous locations where gasoline, petroleum, naphtha, alcohols, acetone, lacquer solvent vapors, natural gas and other flammable liquids are manufactured, used, handled or stored in other than their original containers. Hence, they are ideally suited for the petroleum industry. However, meeting Underwriters' standards is not the only factor considered in the building of Wagner Explosion-Proof motors. Wagner HP motors are designed and built to give many years of trouble-free service under the most severe operating conditions to which explosion-proof motors are likely to be subjected.

WAGNER TYPE CP MOTORS FOR OUTDOOR INSTALLATIONS

The use of Wagner CP totally-enclosed fan-cooled motors in the oil fields and refineries practically eliminates shutdowns for motor maintenance and repair, because CP motors are fully protected against dust, fumes, moisture and corrosive gases—agents which play havoc with open type motors. These destructive elements, prevalent in outdoor and refinery installations, cannot reach the vital parts of the CP motor because of its double frame construction. An outer frame guides a strong cooling draft of air over the motor; the inner frame is tightly sealed to prevent contact of destructive elements with the bearings or windings. Thus, costly shutdowns for motor maintenance are eliminated.

Send for Bulletin MU-182 which illustrates and describes Wagner CP and HP motors as well as other types of Wagner polyphase motors.

M41-19

Wagner Electric Corporation

6400 Plymouth Avenue, Saint Louis, Mo., U.S.A.

MOTORS • TRANSFORMERS • FANS • BRAKES

By
STAFF CORRESPONDENT

Louden Devonian Production Tops Series of Major Strikes

MATTOON, Ill., May 26.—Any doubts of a Devonian boom in the Louden field were whisked away last week when Whisenant & Trenchard 25-D Lilly, NW NE 16-8n-3e, first successful Devonian completion in the field, flowed at the rate of 85 bbl. an hour for 7 hours in its latest production test. In earlier tests, the well flowed as much as 681 bbl. in 8 hours through ⅝-in. choke.

With the successful completion of 25-D Lilly as a Devonian producer, Fayette County is all set for a second oil boom. Already one offset location has been staked by Oil, Inc., and two offsets by the Carter Oil Co. will be required. Also, Whisenant & Trenchard have skidded the derrick from 25-D Lilly one location south for a second test to the Devonian.

Two other Devonian tests now under way in the field are being completed as tight holes and no information concerning their operations could be obtained. Jarvis Bros. 1-D Sinclair, first test to obtain production from the Devonian in the Louden field, is approximately 2 miles southwest of the Lilly test. According to last reports from the Sinclair test, operators are still attempting to shut out the water that entered the hole shortly after the well started flowing. Up to the present time, the well has been producing about 40 per cent water and bottom sediment.

The other Devonian test now under way in the field, Jarvis Bros. et al 1-D Yakey, is about 2 miles south of the Sinclair test. It was at this test that the first Rosiclare saturation in the Louden field was encountered. Although operators are withholding information on this well pending settlement of a difference with another of the major operators in the field over the exchange of structural information, the test is reportedly at a depth for the setting of casing. The Yakey test is now being closely watched, for the results will give some idea of the southern productive boundary of the Devonian horizon. Success of the test would probably mean considerable activity for the southern part of the field where most of the acreage is controlled by independent operators.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Benton	11	4,508	23,626
Dahlgren	2	1,720	6,637
East Calvin	3	900	8,685
Enterprise and West	2	2,452	6,141
Louden	6	339	9,221
Mount Carmel	4	475	8,247
N. New Harmony	6	1,081	17,009
West Liberty	3	3,208	8,538
Other pools	13	1,882	25,255
Wildcats	1	70	3,351
Dry holes: Fields†	8	.....	21,425
Wildcats	13	.....	24,645
Total	72	.....	162,780
Gas-input wells	2	.....	3,258
Recompletions	11	838	.....

†Belle Prairie 1, Hoodville 1, Allendale 1, Mount Carmel 2, W. Enterprise 1, W. Irons 1, Storms 1.

New Pool Opened in Clay County

One of the outstanding developments in the southern part of the Illinois basin last week was the discovery of Tar Springs production in a Clay County wildcat. Carl Robinson 1 Tolliver, SW NW SE 29-5n-7e, created considerable excitement last week when it came in flowing and swabbing at the rate of 100 bbl. a day with no water showing. This well gives the county its first Tar Springs production, although the formation is productive in many other southern Illinois counties. The Tar Springs was topped at 2,315 ft., which is considerably higher than Cypress and Aux Vases formation saturation in other tests in the surrounding territory.

No. 1 Tolliver, which is expected to set off a small drilling boom in the northern part of Clay County, opens the county's fourth pool. Others are located at Clay City, Flora and Iola.

RICHLAND COUNTY.—A sensational Richland County wildcat, which a little more than a week ago shot oil over the top of the derrick during a drill-stem test, has opened a vast new area for development in southern Illinois. Wiggins et al 1 Bowers, W½ SW SE 34-3n-14w, came in flowing naturally from the McClosky early last week, but in initial tests made 300 bbl. of oil and 100 bbl. of water daily. However, the water has now been eliminated and the well placed on pump for a steady output of nearly 300 bbl. a day. Nearest production is about 8 miles northwest of 1 Bowers in the Olney pool.

WAYNE COUNTY.—John Sanders last week completed 3 Hubble, 30-2n-8e, as the largest well in this part of the basin, and the largest producer completed in the state for several months. No. 3 Hubble, which came in flowing naturally 2 weeks ago, flowed steadily at the rate of 250 bbl. an hour after acid treatment last week. It is estimated as a 6,000-bbl. well. No. 3 Hubble is located in an area about half way between the Enterprise and North Enterprise pools. In the past few weeks several other wells have been completed in this area, all of which have averaged over 1,000 bbl. a day each.

ILLINOIS COMPLETIONS

Champaign County

Wildcat: Union Prod. Pet. 1 Messman, NW NE 18-17n-11e, dry, Trenton 1,683 ft., T.D. 1,850 ft.

Clark County

Wildcat: B. Spencer et al 1 Sharp, NE NW SW 29-11n-13w, dry, T.D. 760 ft.

Martinsville: Cambrian Oil Synd. 1 M. Lainger, NE SW NE SW 24-10n-14w, pumped 10 bbl., 60-qt. shot on bottom, sand 445-85 ft., T.D. 485 ft.

Clay County

Clay City: Orchard Oil 6 Norton, N½ SE SW 7-2n-8e, pumped 130 bbl., 30-qt. shot 2,663-74 ft., Cypress sand 2,656 ft., T.D. 2,674 ft.

Clinton County

Wildcat: W. R. Holmes 1 Vogt, NW NW SE 23-1n-1w, dry, No. 6 Coal 568 ft., Menard 995 ft., Waltersburg 1,010 ft., Vienna 1,055 ft., Tar Springs 1,085 ft., Glen Dean 1,140 ft., Hardinsburg 1,180 ft., Golconda 1,205 ft., Cypress 1,307 ft., Cypress sand 1,327 ft., T.D. 1,410 ft.

Max Conrey 1 B. O. Maschoff, SE SW SW 18-1n-2w, dry, Cypress 1,160 ft., Benoist 1,306 ft., T.D. 1,350 ft.

Algona 1 Marshall, SE SE SW 12-1n-1w, dry, old well deepened from 2,938½-3,137 ft., Trenton test in Centralia field.

Edgar County

Wildcat: Levy et al 1 Cockroft, SW SE SE 11-12n-11w, dry, T.D. 1,205 ft.

Edwards County

Wildcat: R. B. Martin 1 Lester, W½ SW SW 19-2s-10e, pumped 70 bbl., 20 per cent b.s. and w., perf. 3,338-45 ft., 500 gal. acid, McClosky 3,340-48 ft., T.D. 3,351 ft.

Franklin County

Benton: Wegener 3 Gentry, NE NW SW 24-6s-2e, pumped 300 bbl., 30-qt. shot 2,098-2,116 ft., Tar Springs 2,083 ft., T.D. 2,117 ft.

Adkins 2 C. W. & F. Coal Co., SE SE SW 25-6s-2e, pumped 562 bbl., 40-qt. shot 2,122-55 ft., Tar Springs sand 2,117 ft., T.D. 2,155 ft.

Adkins 5 Rice, SW SE NW 25-6s-2e, pumped 375 bbl., 30-qt. shot 2,144-62 ft., Tar Springs sand 2,134 ft., T.D. 2,162 ft.

Shell 8 W. E. Doty et al, SE SW NE 25-6s-2e, pumped 189 bbl., 15-qt. shot 2,143-53 ft., Tar Springs sand 2,116 ft., T.D. 2,156 ft.

Wegener 1 Hammond, N½ SW NE NE 26-6s-2e, pumped 520 bbl., 20-qt. shot 2,114-27 ft., Tar Springs sand 2,106 ft., T.D. 2,127 ft.

Howell 1 A. Minier, N½ NW SE NE 36-6s-2e, pumped 175 bbl., 30-qt. shot on bottom, Tar Springs sand 2,095 ft., T.D. 2,137 ft.

McBride 1 Minier, NW NE NE 36-6s-2e, pumped 468 bbl., 20-qt. shot 2,126-43 ft., Tar Springs sand 2,104 ft., T.D. 2,145 ft.

McBride 2 Minier, SW NE NE 36-6s-2e, pumped 528 bbl., 20-qt. shot 2,125-43 ft., Tar Springs sand 2,100 ft., T.D. 2,149 ft.

Morgan 4 Minier, SW NW NE 36-6s-2e, pumped 432 bbl., 60-qt. shot 2,118-50 ft., Tar Springs sand 2,103 ft., T.D. 2,161 ft.

Shell 3 C. W. & F. Coal Co. "R-S," SE NE NW 36-6s-2e, pumped 530 bbl., 5-qt. shot 2,136-46 ft., Tar Springs sand 2,110-69 ft., T.D. 2,169 ft.

Shell 1 C. W. & F. Coal Co. "T," NE SW NE 36-6s-2e, pumped 429 bbl., 15-qt. shot 2,125-35 ft., Tar Springs sand 2,091-2,148 ft., T.D. 2,148 ft.

Wildcat: Yingling et al 1 Cyrus Webb, E½ E½ SW SE 16-5s-4e, dry, Barlow 2,780-89 ft., Cypress sand 2,800-24 ft., Paint Creek 2,923 ft., Aux Vases 3,086-3,120 ft., Ste. Genevieve 3,137 ft., Fredonia 3,217 ft., T.D. 3,279 ft.

Fayette County

Louden: Magnolia 8 Buzzard Bros., SW SW NE 29-8n-3e, pumped 20 bbl., 20-qt. shot 1,386-99 ft., Cypress sand 1,373 ft., T.D. 1,399 ft.

Carter 1 Doty-Kinsey, NW NE SE 12-8n-3e, swabbed 72 bbl., 20-qt. shot 1,522-30 ft., Cypress sand 1,517-30 ft., T.D. 1,530 ft.

Carter 1 Knapp, SE SW NE 20-8n-3e, swabbed 156 bbl., 40-qt. shot 1,463-76 ft., Cypress sand 1,458-84 ft., T.D. 1,539 ft.

Carter 12-2 Huffman, NE NE NW 12-8n-3e, gas input well, Glen Dean 1,356 ft., Cypress 1,484 ft., Cypress sand 1,516 ft., Benoist 1,614-44 ft., T.D. 1,662 ft.

Carter 21-5 Boles, NW NW SW 21-8n-3e, gas input well, Glen Dean 1,293 ft., Cypress 1,412 ft., Cypress sand 1,451-72 ft., Benoist 1,550-90 ft., T.D. 1,596 ft.

Carter 5 B. Shaw, NE NW NE 17-7n-3e, pumped 24 bbl. oil and 10 bbl. water, 35-qt. shot 1,567-79 ft., 20-qt. shot 1,579-85 ft., T.D. 1,585 ft.

Carter 4 A. Miller, SE SW SE 8-7n-3e, pumped 27 bbl. oil and 12 bbl. water, 30-qt. shot 1,574-86 ft., Benoist 1,564-84 ft., T.D. 1,586 ft.

Carter 2 G. Osburn, N½ SW SW NE 4-7n-3e, pumped 40 bbl. oil and 2 bbl. water, 30-qt. shot 1,560-72 ft., 30-qt. shot 1,564-76 ft., Paint Creek 1,555 ft., T.D. 1,582 ft.

St. James: Paul Doran 1 Kistler, SE SW NW 36-6n-2e, pumped 40 bbl., 10-qt. shot 1,607-13 ft., Cypress sand 1,605 ft., T.D. 1,614 ft.

Gallatin County

Omaha: Carter 1 R. L. Carnahan, SE NW SW 4-8s-8e, pumped 76 bbl., 40-qt. shot 1,898-1,914 ft., Tar Springs 1,874-1,914 ft., T.D. 1,914 ft.

Inman: Buell-Herndon 3 Egyptian T. & T., SE NW SE 16-8s-10e, pumped 65 bbl., 10-qt. shot 2,080-86 ft., Tar Springs 2,072 ft., T.D. 2,086 ft.

Phillips Pet. 2 Egyptian T. & T., SE SE NE 16-8s-10e, pumped 188 bbl. oil and 8 bbl. water, 25-qt. shot 2,002-72 ft., Tar Springs 2,056 ft., T.D. 2,073 ft., P.B. 2,072 ft.

Wildcat: Arrow Drlg. 1 John Hancock Life, NW NE SW 4-9s-8e, dry, base Golconda 2,321 ft., Cypress 2,325 ft., T.D. 2,375 ft.

Hamilton County

Dahlgren: DeKalb 1 Scrivener, S½ NE SW 27-3s-5e, pumped 590 bbl., 3,000 gal. acid, McClosky 3,283-96 ft., T.D. 3,305 ft.

Sinclair 3 Hall, SW SE SE 27-3s-5e, swabbed 1,130 bbl., 7,000 gal. acid, McClosky 3,305-16 ft., T.D. 3,332 ft.

Bell Prairie: Eason 1 H. C. Little, N½ NE SW 2-4s-6e, dry, Benoist 3,155 ft., Renault 3,206 ft., Aux Vases 3,246 ft., Ste. Genevieve 3,382 ft., Rosiclare 3,351 ft., Fredonia 3,395 ft., McClosky 3,450-61 ft.

Hoodville: Sinclair 15-C Friel, SE SE SW 34-5s-6e, pumped 300 bbl., 15-qt. shot 3,051-56 ft., Aux Vases 3,043 ft., old well deepened from 3,054-56 ft.

Ill. Prod. 1 C. Hood, NE SW NW 35-5s-6e, dry, Glen Dean 2,487 ft., Barlow 2,719 ft., Cypress 2,726 ft., Cypress sand 2,749 ft., Benoist 2,960-79 ft., Aux Vases 3,066 ft., Ste. Genevieve 3,122 ft., McClosky 3,140-60 ft., T.D. 3,172 ft.

Dale: Cameron 1 E. Griffith, SW SW SE 31-5s-7e, dry, Aux Vases 3,036-71 ft., old well P.B. from 3,165-3,071 ft.

Jasper County

West Liberty: Pure 3 J. Canny, E½ NW SE 17-5n-10e, flowed 885 bbl., 5,000 gal. acid, McClosky 2,780-88 ft., T.D. 2,820 ft.

Pure 2 H. F. Craig, W½ SW SW 20-5n-10e, flowed 862 bbl., 5,000 gal. acid, McClosky 2,811-21 ft., T.D. 2,860 ft.

Montgomery County

Wildcat: Hoover 1 Battles, SW NE NW 16-9n-2w, dry, T.D. 2,598 ft.

Brown 1 Luddeke, SE NW NW 28-9n-4w, dry, T.D. 2,008 ft.

Marion County

Tonti: Absher & Booth 8 McMaclin, NE SW SW 34-3n-2e, pumped 40 bbl. oil and 10 bbl. water, Benoist 1,940-50 ft., T.D. 1,950 ft.

Salem: Texas 27 A. McCollum, NW NW NE 32-2n-2e, pumped 40 bbl., natural, Trenton 4,507 ft., old well deepened from 3,400-4,637 ft.

Texas 21 Friesner, NE NE NW 32-2n-2e, pumped 85 bbl., Trenton 4,468 ft., old well deepened from 3,370-4,601 ft.

Texas 12 L. Dunning, SE SE SE 30-2n-2e, pumped and flowed 120 bbl., natural, Trenton 4,514 ft., old well deepened from 3,397-4,645 ft.

Magnolia 41 S. Shanafelt, SE SW SE 29-2n-2e, pumped 43 bbl., 140-qt. shot 4,565-4,636 ft., old well deepened from 3,448-4,655 ft.

Texas 22 N. Lee-A, NW NW SW 28-2n-2e, pumped 96 bbl., natural, Trenton 4,541 ft., old well deepened from 3,448-4,660 ft.

Ladd 4 Young Church, SW SW SW NW 21-2n-2e, pumped 22 bbl., Trenton 4,555 ft., old well deepened from 3,465-4,665 ft.

East Patoka: Schoenfeld 3 Stephens, SE SW SE 27-4n-1e, pumped 50 bbl. oil and ½ bbl. water, 10-qt.

shot 1,351-59 ft., Cypress sand 1,344 ft., T.D. 1,360 ft.

Wildcat: Perry et al 1 Ehart, SW SE SE 12-4n-1e, dry, Menard 1,265 ft., Glen Dean 1,433 ft., Hardinsburg 1,453 ft., Golconda 1,488 ft., Cypress 1,580 ft., T.D. 1,698 ft.

Morgan County

Wildcat: Andre 1 Hart, NE NE NW 9-16n-12w, dry, T.D. 585 ft.

Richland County

West Liberty: Pure 1 N. Witerback-A, N½ SW NW 29-5n-10e, flowed 1,461 bbl., 5,000 gal. acid, Fredonia 2,816 ft., pay 2,818-30 ft., T.D. 2,858 ft.

St. Clair County

Dupc Tarleton Oil 6 Tarleton, SE SE SE 28-1n-10w, pumped 300 bbl. oil and 246 bbl. water, 1,000 gal. acid, Trenton 670 ft., T.D. 730 ft.

Wabash County

Allendale: Choate et al 1 Smith, NW NE NW 17-1n-12w, dry, T.D. 1,480 ft.

Adams Corner Oil 1 D. Wright, SE NE SW 9-1n-12w, pumped 75 bbl. oil and 10 bbl. water, 25-qt. shot 2,011-19 ft., Cypress sand 2,000-03½ ft., 2,010-20 ft., T.D. 2,020 ft.

Mount Carmel: Olds et al 1 Riverside Park, NE SE SW 21-1s-12w, pumped 180 bbl., 25-qt. shot 1,982-93 ft., Cypress sand 1,980-81 ft., T.D. 1,993 ft.

Taylor Drlg. 1 Beary, NW NE SW 30-1s-12w, dry, Waltersburg 1,744 ft., Vienna 1,796 ft., Tar Springs sand 1,803 ft., Glen Dean 1,928 ft., T.D. 1,994 ft.

Ill.-Mid-Continent 1 Young, NW SE NE 20-1s-12w, pumped 200 bbl., 30-qt. shot 2,043-55 ft., Cypress sand 2,040-55 ft., T.D. 2,055 ft.

Hall-Jordan 1 Bernard, NE SW NE 20-1s-12w, dry, Menard 1,572 ft., Waltersburg 1,643-67 ft., Tar Springs 1,708 ft., Glen Dean 1,815 ft., Golconda 1,917 ft., Barlow 2,005 ft., Cypress 2,013 ft., Cypress sand 2,023 ft., T.D. 2,041 ft.

Shell 5 Highland Comm., NW NW SW 17-1s-12w, pumped 79 bbl., Cypress sand 2,071-79 ft., T.D. 2,085 ft.

Shell 1 Chapman, SW SW NE 18-1s-12w, pumped 16 bbl., 5-qt. shot 2,111-14 ft., Cypress sand 2,104-14 ft., T.D. 2,114 ft.

Griffin: Misner & Baldwin 1 Akin, W½ NW NW 7-3s-13w, pumped 700 bbl. oil and 1,400 bbl. water, perf. 2,817-26 ft., 3,000 gal. acid, McClosky 2,858-64 ft., 2,818-22 ft., T.D. 2,871 ft.

South Griffin: Longhorn 12 Helm, SW NE SE 22-3s-14w, pumped 80 bbl. oil and 20 bbl. water, 1,000 gal. acid, McClosky 2,870-72 ft., 2,886-92 ft., T.D. 2,895 ft.

Wildcat: Burr Lambert 1 Baumgart, NE NE SE 6-1s-12w, dry, Waltersburg sand 1,730-40 ft., Vienna 1,809 ft., Glen Dean 1,847 ft., Hardinsburg 1,906 ft., Golconda 1,969 ft., Barlow 2,058 ft., Cypress sand 2,080-94 ft., Benoist 2,202 ft., Renault 2,271 ft., Ste. Genevieve 2,352 ft., McClosky 2,371-78 ft., T.D. 2,422 ft.

Wayne County

West Enterprise: Pure 1 E. A. Heith-C, W½ SW NE 36-2n-7e, dry, T.D. 3,065 ft.

Pure 2 R. Benskin-A, E½ NW NE 1-1n-7e, pumped 52 bbl. oil and 50 bbl. water, 5,000 gal. acid, Rosiclare 2,991-96 ft., T.D. 3,100 ft.

Enterprise: Sanders 5 L. Hubble, S½ SE SW SE 30-2n-8e, flowed 2,400 bbl., natural, McClosky 3,012-27 ft., 3,035-39 ft., T.D. 3,041 ft.

White County

West Irons: Carter 1 Bolerjack, SW SE NE 23-6s-8e, pumped 128 bbl. oil and 65 bbl. water, 40-qt. shot 2,561-71 ft., 20-qt. shot 2,409-17 ft., 60-qt. shot 2,407-27 ft., Hardinsburg sand 2,547-83 ft., T.D. 2,583 ft., P.B. 2,572 ft.

W. C. McBride 1 Lawrence, SE SW NW 24-6s-8e, dry, T.D. 3,157 ft.

Storms: Blackstock 1 H. B. Warren, NW SW SE 23-6s-9e, dry, T.D. 3,055 ft.

East Calvin: Pumped 70 bbl. oil and 10 bbl. water, perf. 2,888-94 ft., 2,903-11 ft., 1,500 gal. acid, McClosky 2,889-94 ft., 2,903-15 ft., T.D. 2,915 ft.

Buell-Herndon 10 J. Bond, SW SW SE 5-4s-14w, swabbed and flowed 680 bbl., 80-qt. shot 2,830-52 ft., Aux Vases 2,814 ft., T.D. 2,852 ft.

Yingling et al 1 Smith, NE SE SW 5-4s-14w, swabbed and flowed 150 bbl., 100-qt. shot 2,888-2,918 ft., Aux Vases 2,884-2,918 ft., T.D. 2,918 ft.

North New Harmony: First Nat. Pet. Trust 3 Ford heirs, SW NE SW 22-4s-14w, swabbed and flowed 120 bbl., 70-qt. shot 2,840-71 ft., Aux Vases 2,838-71 ft., T.D. 2,871 ft.

Superior 11 H. C. Ford et al-C, NW SW SW 27-4s-14w, pumped 121 bbl., perf. 2,690-2,733 ft., 2,564-2,604 ft., 100-qt. shot 2,819-45 ft., 315-qt. shot 2,810-45 ft., Aux Vases 2,802-32 ft., Benoist 2,688-2,730 ft., Cypress sand 2,563-2,608 ft., T.D. 2,845 ft.

Sun et al 1 Jacobs-A, SW SE NE 28-4s-14w, pumped 35 bbl., 50-qt. shot 2,830-50 ft., 84-qt. shot 2,828-48 ft., T.D. 2,854 ft., P.B. 2,848 ft.

Sun et al 2 Jacobs-A, SE SW NE 28-4s-14w, flowed 456 bbl., 66-qt. shot 2,687-2,716 ft., Aux Vases 2,833 ft., T.D. 2,854 ft., P.B. 2,721 ft.

Superior 9 E. M. Fitton-A, NE SW SW 28-4s-14w, pumped 175 bbl., 100-qt. shot 2,830-55 ft., 400-qt. shot 2,826-49 ft., Aux Vases 2,825-53 ft., T.D. 2,855 ft.

Superior 5 H. M. Ford, SW NE SE 28-4s-14w, pumped 125 bbl. in 12 hr., 600-qt. shot 2,835-40 ft., perf. 2,710-35 ft., 2,104-18 ft., old well worked over, T.D. 2,845 ft.

Superior 8 Greathouse, NW NW NW 3-5s-14w, pumped 174 bbl., 100-qt. shot 2,705-30 ft., 280-qt. shot 2,715-25 ft., Benoist 2,700-30 ft., T.D. 2,730 ft.

South New Harmony: Benedum-Trees 1 Golden, NW NE SE 29-5s-14w, pumped 7 bbl. oil and show water from Benoist and McClosky, 1,500 gal. acid, McClosky 3,044-60 ft., perf. 2,814-24 ft., Benoist 2,816-32 ft., old well deepened from 2,844-3,060 ft.

Wildcat: C. D. Neff et al 1 Stum, NE NW NW 22-5s-14w, dry, Menard 2,199 ft., Vienna 2,327 ft., Tar Springs sand 2,339 ft., Glen Dean 2,458 ft., Golconda 2,559 ft., Barlow 2,682-95 ft., Cypress sand 2,728-59 ft., Benoist 2,863-2,915 ft., Renault 2,915 ft., Aux Vases 2,982 ft., Ste. Genevieve 3,003 ft., Fredonia 3,032 ft., McClosky 3,055-61 ft., 3,072-85 ft., T.D. 3,105 ft.

ILLINOIS DRILLING REPORT

Clay County

C. Robinson 1 Tolliver ..... SW NW SE 26-4n-7e
Base Pennsylvanian 2,002 ft., Menard 2,209 ft., Tar Springs 2,327 ft., cored 2,329-41 ft., received 10¾ ft. saturated sand, 1-hr. D.S. test 2,327-41 ft., received 260 ft. oil and 40 ft. oil-cut mud, drilled plug and bailed down, now swabbing 8 bbl. an hr., 40 per cent water, water decreasing, T.D. 2,341 ft.

Effingham County

Lynch & Jansen 1 J. Burk ..... W½ SE NW 27-6n-5e
Glen Dean 1,974 ft., Benoist 2,283 ft., cored 2,285-94 ft., received 7 ft. saturated sand, cored 2,294-2,302 ft., received 5 ft. saturated sand and 6 ft. shaly sand, no water, T.D. 2,302 ft., to run casing.

Franklin County

Meyers Drlg. 1 Rice ..... NE NW SE 26-6s-2e
Menard 2,006 ft., Waltersburg 2,076 ft., Waltersburg sand 2,111-15 ft., Vienna 2,132-35 ft., Tar Springs 2,139 ft., Tar Springs sand 2,150 ft., 5½-in. 2,134 ft., T.D. 2,160 ft., testing on pump.

Jackson County

Wiser Oil 1 Overholt ..... SE SW 22-7s-1w
Benoist 2,000-11 ft., T.D. 2,387 ft., P.B. 2,025 ft., re-shot 15 qt. 1,997-2,021 ft., put on pump.

Marion County

Hudson & Hess 1 Ben Young .... SW SW SW 7-2n-2e
Warsaw 2,645 ft., Osage 2,750 ft., Louis 3,342 ft., Chattanooga 3,373 ft., Devonian 3,485 ft., drilling 3,500 ft.

Wabash County

Snowden & McSweeney 1 McMillen ..... S½ SE NW SE 3-1n-12w
Glen Dean 1,742 ft., Barlow 1,940 ft., Cypress sand 2,008-14 ft., 2,016-20 ft., 7-in. 1,999 ft., T.D. 2,021 ft., rigging up standard tools.

White County

Cherry & Kidd 1 M. Prell ..... NE SE SW 24-6s-10e
West Franklin 432 ft., upper Kincaid 1,792 ft., lower Kincaid 1,892 ft., Degonia 1,959 ft., Menard 2,125 ft., Vienna 2,239 ft., Tar Springs 2,245-75 ft., 2,295-2,352 ft., Glen Dean 2,374 ft., Golconda 2,480 ft., Barlow 2,606 ft., Cypress sand 2,615 ft., drilling 2,745 ft.

Ryan Oil 1 Barnes ..... SE SW SE 12-6s-10e
Upper Kincaid 1,725 ft., lower Kincaid 1,850 ft., Palestine 2,039 ft., Menard 2,078 ft., Waltersburg 2,142-52 ft., drilling 2,172 ft.

Continental 1 Ackerman ..... NE NW NE 25-5s-10e
T.D. 3,097 ft., P.B. 2,957 ft., pumped 15 bbl. oil and 6 bbl. water, squeezed, waiting on cement.

French & Lavender 1 A. C. Metcalf SW SW SE 31-3s-14w
Tar Springs 2,359 ft., drilling 2,415 ft.

Compton & Fotlades 1 W. C. Gray NE SW SW 21-4s-14w
Glen Dean 2,347 ft., Cypress sand 2,600 ft., cored 2,606-22 ft., received 13 ft. saturated sand, S.D. 2,622 ft.

Sallee Bros. 1 Emil Doerr ..... NE NE SE 21-4s-9e
McClosky 3,243-46 ft., 3,269-74 ft., 3,289-92 ft., T.D. 3,307 ft., 5½-in. 3,307 ft., waiting on cement.

TO REDUCE EXPENSE OF CATHODIC PROTECTION FOR PIPE LINES, TANKS, AND OTHER METALLIC CONSTRUCTION

USE NATIONAL TRADE-MARK CARBON OR GRAPHITE GROUND ANODES

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Wildcatters Start Six Tests to Deep Zones in North Basin

By R. MARNE SANFORD

MIDLAND, Tex., May 26.—During the past 14 days there have been six exploratory tests either staked as new locations or projected below the region's normal producing horizons as exploratory holes. Sharing in this renewed North Basin program are Terry, Borden, Martin, Andrews and Yoakum counties, there being two deepening projects in order for the latter county.

New tests this week include Terry, Borden and Yoakum counties with one each. The Texas Co. started moving in materials for a wildcat in Terry County located 9 miles south and 6 miles west of the Terry County extension portion of the vast Slaughter field. It is 1 S. T. Murphy, located 660 ft. out of the northwest corner of Section 22, Block K, P.S.L. Survey. Drilling contract has been let for a 5,500-ft. hole. This is one of the first tests to seek production any great distance south of the Slaughter field. All previous outposts have been either to the east or west with some outposts staked on the north end of the field.

Another attempt to open new production on the Sharon Ridge trend through southern Scurry and Borden counties will be made by Coffield & Guthrie, the discovery firm of the Sharon field several years ago. The company's new wildcat is in an area where several failures have been drilled in recent months, all attempting to extend the trend production northwest from the Sharon field into Borden County. The new attempt is 1 Conrad, located 1,320 ft. from the north and west lines of Section 79, Block 20, Lavaca Navigation Co. Survey. Contract depth is set at 3,250 ft. The test is in the southeastern part of Borden County and about 1 mile from the Scurry County line.

Possibility of a new deep horizon test for the Wasson field of Yoakum County was seen when an old failure on the north edge of the field was being cleaned out for new production attempts and a deepening project should the attempts fail. It is Murchison 1 Sawyer, located in SW SE Section 702, Gibson Survey. The hole was quit several years ago at a depth of 5,243 ft. It will be deepened 25 ft. or to 5,268 ft. and should production fail it will continue to the 7,000-ft. level attempting to find the deep production opened by Amon Carter 4-D Wasson, about 7½ miles south.

About 10 days ago new wildcats were reported for Martin and Andrews counties, and a projected 11,000-ft. test resumed operations in Yoakum County. The Martin County test is being readied for immediate drilling. It is C. E. Hyde and P. N. Wiggins Jr., 1 M. J. Stimson and Burley, 1,320 ft. from the south and west lines of Section 4, Block 38, Township 1s, T.&P. Survey, about 14 miles northwest of the town of Stanton. Contract depth is 5,000 ft.

The Andrews County new wildcat of a week ago was the Mascho Oil 1 Gulf-University, NW cor. Section 19, Block 9, University Survey, between the Emma and the Fuhrman fields. It is being prepared for spudding. This is the third active wildcat that the Mascho Oil Co. has in southern Andrews County.

As a north offset to the 4-D Wasson which opened the 6,800-ft. producing level in the Wasson field last year, Amon G. Carter is now drilling below 10,550 ft. at his 5-D Wasson, work having been resumed after several months' shut down. The contract depth as filed with the Texas Railroad Commission is 11,000 ft. and it is located in NW SE Section 50, Block AX, P.S.L. Survey.

SUMMARY OF COMPLETIONS

Southern West Texas

	No.	Bbl.	Footage
Oil: Jordan field	2	270	7,141
Foster field	2	992	8,645
Johnson field	2	433	8,336
Abell field	2	3,873	10,792
McCamey field	2	338	5,332
Estes field	2	833	5,446
Keystone field	3	799	9,941
Other fields	7	5,631	21,385
Total	22		77,018

Northern West Texas

Oil: Slaughter field	12	11,273	59,951
Wasson field	7	7,459	36,327
Seminole field	2	1,226	10,572
Sharon field	1	158	2,481
Total	22		109,331

Texas Panhandle

Oil wells: Gray County	7	859	21,573
Hutchinson County	1	303	3,077
Wheeler County	2	241	4,495
Gas wells: Moore County	1	*7	3,363
Total	11		32,508

Southeast New Mexico

Oil wells	2	63	2,102
Gas wells	1	*3	4,327
Total	3		6,429

*Million cu. ft.

SOUTHERN WEST TEXAS COMPLETIONS

(24-hr. ratings based on last 3 hr. of 6-hr. gage)

Crane County

Jordan: Gulf 26 Henderson 240 bbl., gas lift, 210-qt. shot, 3,495-3,543 ft.
Westex Oil 2-C University, 30 bbl. oil and 67 bbl. water, pumping, 342-qt. shot, 3,484-3,598 ft.
Tubb: Humble 54 Tubb, 1,533 bbl., open tubing, 4,000 gal. acid, 4,284-4,406 ft.

Crockett County

Noelke: Pittman & Atkins 2-D Noelke, 844 bbl. in 12 hr., natural, open tubing, 1,454-79 ft.
Crockett: Armer & Armer 11-A Powell, 264 bbl., 10 per cent water, 2,646-61 ft.

Ector County

Foster: Continental 6-C T.&P., 283 bbl., open tubing, 4,000 gal. acid, 4,200-80 ft.
C. O. Davis 2 Judkins, 709 bbl., open tubing, 700-qt. shot, 4,280-4,365 ft.
North Cowden: Carl B. King 4-B Holt, 326 bbl., open tubing, 170-qt. shot, 4,350-86 ft.
Johnson: Stanolind 22-A Johnson, 70 bbl., 1-in. choke, 223-qt. shot, 4,070-4,155 ft.
Sunray Oil 3-E Johnson, 363 bbl., open tubing, 210-qt. shot, 4,106-81 ft.

Pecos County

White & Baker: Cardinal 2-G White & Baker, 82 bbl., 90-qt. shot, 2,004-25 ft.
Wray Richards 1 Ribbin, dry at 2,005 ft.
Abell: Magnolia 1-B Markey, 1,520 bbl., ½-in. choke, natural, 5,418-24 ft.
Sinclair Prairie 1 Dailey, 2,353 bbl., ½-in. choke, natural, 5,359-68 ft.

Upton County

McCamey: Texas Pacific 2-G Shark, 193 bbl., pumping, 2,000 gal. acid, 2,632-39 ft.
Trebol Oil 3 Rogers, 145 bbl., pumping, 2,000 gal. acid, 2,597-2,693 ft.

Ward County

Estes: Gulf 145 Estes, 618 bbl., open casing, 460-qt. shot, 2,502-2,678 ft.
Gulf 169 O'Brien, 215 bbl., open casing, 540-qt. shot, 2,618-2,768 ft.

Winkler County

Keystone: Bates-Reading Oil 7 McCabe, 260 bbl., open tubing, 480-qt. shot, 2,835-3,026 ft.
Gulf 41 Keystone, 201 bbl., open casing, 530-qt. shot, 3,340-3,487 ft.
Sam Weiner 7 Jenkins, 338 bbl., ¾-in. choke, 460-qt. shot, 3,310-3,428 ft.
Hendricks: Stanolind & Westbrook T-88-H-1 Hendrick, 924 bbl., ¾-in. choke, 422-qt. shot, 2,770-3,000 ft.
Halley: Skelly 39 Halley, 814 bbl., 44/64-in. choke, 260-qt. shot, 2,750-2,880 ft.

NORTHERN WEST TEXAS

The Abell field of northern Pecos County held attention in the southern basin area at the close of the week as five new tests were either completing or nearing the completion stages. Magnolia 2 Crockett, Section 4½, Block 3, H.&T.C. Survey, is bottomed at 5,303 ft. with oil sand topped at 5,297 ft. The hole is being cleaned out for testing. The same firm's 1 J. F. McKee, Section 25, Block 9, H.&G.N. Survey, was coring below 4,995 ft. after encountering shows of gas with stains of oil from 4,980-85 ft. Magnolia 1 Gerety, Section 23, Block 9, H.&G.N. Survey, was coring below 5,290 ft. with shows of oil. Saturation is expected to be found within the next few feet.

Magnolia 2 State-Baldwin, Section 24, Block 9, H.&G.N. Survey, was coring ahead and expecting saturation below 5,243 ft. George Abell 1 Rixse, Section 25, Block 9, H.&G.N. Survey, was swabbing an unestimated amount of oil and gas through tubing. The test has been drilled into salt water at 5,043 ft. and was plugged back to 4,997 ft. Sinclair Prairie 1 Grove, Section 26, Block 9, H.&G.N. Survey, showing for a 1¼-mile east extension to the field, is bottomed at 5,447 ft. and is sealing off upper horizon gas zones preparatory to completing from the deep level.

Winkler Ordovician Test Seen

Prospects for a deep Ordovician wildcat were seen for northern Winkler County, however, the report is unconfirmed. Magnolia 20 State-Walton, Section 4, Block 3-B, P.S.L. Survey, 1 mile east of the northern part of the Kermit area and west of the Keystone field, is bottomed at 3,676 ft. in lime. The fact that 9⅝-in. casing was being cemented on bottom led some to believe that a deep test was promised. The hole is at present bottomed several hundred feet below the producing horizons of either the Keystone or the Kermit fields.

NORTHERN WEST TEXAS COMPLETIONS

(24-hr. ratings based on last 3 hr. of 6-hr. gage)

Cochran County

Slaughter: Honolulu Oil 4-5 Igoe & Smith, 801 bbl., open casing, 9,000 gal. acid, 4,950-5,011 ft.
Magnolia 4-J Mallett, 1,264 bbl., 3-in. casing outlet, 10,500 gal. acid, 4,998-5,010 ft.
Magnolia 5 Woodley, 837 bbl., 3-in. casing outlet, 10,500 gal. acid, 4,933-95 ft.

Gaines County

Seminole: Amerada 2 Austin, 613 bbl., ½-in. gage, 120-qt. shot, 5,158-5,240 ft.
Amerada 3 Turlin, 613 bbl., ½-in. choke, 4,000 gal. acid, 5,112-5,332 ft.
Wasson: Continental and Carter 10-48 Wasson, 1,435 bbl., 2-in. choke, 12,000 gal. acid, 4,910-65 ft.

Hockley County

Slaughter: Delta Drlg. 1-C Slaughter, 411 bbl., pumping, 10,500 gal. acid, 4,880-4,965 ft.
Honolulu 5 Frazier, 1,200 bbl., 2¼-in. casing outlet, 9,750 gal. acid, 4,930-5,000 ft.
Honolulu 4-B Mallett, 1,151 bbl., 2½-in. casing outlet, 9,750 gal. acid, 4,960-5,030 ft.
S. W. Richardson 10 Coe, 839 bbl., 2-in. casing outlet, 10,000 gal. acid, 4,890-4,985 ft.
S. W. Richardson 23 Slaughter, 922 bbl., 2-in. casing outlet, 9,000 gal. acid, 4,850-4,965 ft.
S. W. Richardson 3-C Slaughter, 1,104 bbl., 2-in. casing outlet, 10,000 gal. acid, 4,897-4,995 ft.
S. W. Richardson 16-B Slaughter, 972 bbl., 2-in. casing outlet, 10,000 gal. acid, 4,905-95 ft.
W. J. Richardson 3 Allison, 734 bbl., 2-in. casing outlet, 10,000 gal. acid, 4,885-4,985 ft.
Texas 2-E Mallett, 1,038 bbl., open casing, 10,000 gal. acid, 4,961-5,035 ft.

Scurry County

Sharon: Dobson & Robinson 9 Burney, 158 bbl., pumping, 720-qt. shot, 2,340-2,481 ft.

Yoakum County

Wasson: Argo Oil 2-B Comer, 1,667 bbl., 2-in. tubing, 12,000 gal. acid, 4,955-5,180 ft.
Denver Prod. & Refg. 29 Whittenburg, 1,058 bbl., open tubing, 10,000 gal. acid, 4,825-5,163 ft.
North Shore Oil 2 Bennett, 1,040 bbl., open tubing, 10,000 gal. acid, 5,020-5,276 ft.
North Shore Oil 3 Bennett, 1,140 bbl., open tubing, 7,500 gal. acid, 5,265-75 ft.
Oil Development Co. 2-743 fee, 260 bbl., ¾-in. choke, 1,200 gal. acid, 4,960-5,190 ft.
Sinclair Prairie 4 Willard, 859 bbl., open tubing, 10,000 gal. acid, 5,038-5,278 ft.

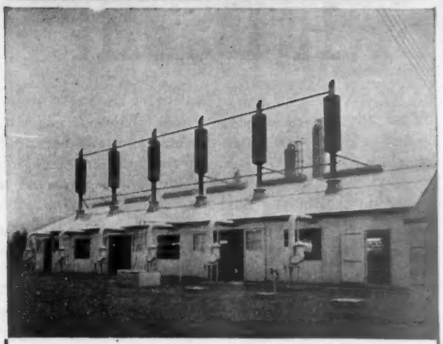
TEXAS PANHANDLE

AMARILLO, Tex., May 26.—There were 11 new completions registered in the Panhandle fields the past week as against 22 new locations for the same period. Of the finals, 10 were for oil with 7 in Gray County, 2 in Wheeler County, and 1 in Hutchinson County, while 1 was for gas and in Moore County.

The total number of new locations during the past

(Continued on Page 82)

MAXIM



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Deep Sand Production Opened At Old West Columbia Field

By NEIL WILLIAMS

HOUSTON, Tex., May 26.—The opening of deep sand production on the north flank of the old West Columbia field, Brazoria County, and the discovery of crude production from the Cockfield sand in the West Conroe gas field, Montgomery County were the highlights of development along the Texas Gulf Coast district the past week.

Interest in the old West Columbia field, Brazoria County, was revived once again w the opening of deep sand production on the north flank of the structure by the completion of S. W. Richardson 2 Holmes which is flowing at the rate of 146 bbl. of 57-gravity distillate per day through a $\frac{1}{4}$-in. choke. Tubing pressure was 2,500 lb., and shut-in casing pressure 2,650 lb. The well was drilled to a total depth of 8,518 ft., and production is through perforated casing at 8,244-50 ft. While the sand section has not been identified, it is believed to be the basal Frio or the upper Vicksburg formation.

This is the deepest test ever drilled around the flanks of the structure which was discovered in 1915. The field has produced nearly 85,000,000 bbl. of oil, and the structure ranks as one of the most prolific salt-dome structures in the district. Most of this oil has been produced from the Pliocene and Miocene sands at intervals from 595-4,000 ft. Interest in the field was revived in 1937 with the opening of Frio production on the northwest flank by Sterling Oil & Refining Co. Up to the present time, several horizons in this section from 5,200-5,900 ft., have been developed. The new producer is located in the George Tenille Survey, and the rig is being moved to the southeast for 3 Holmes.

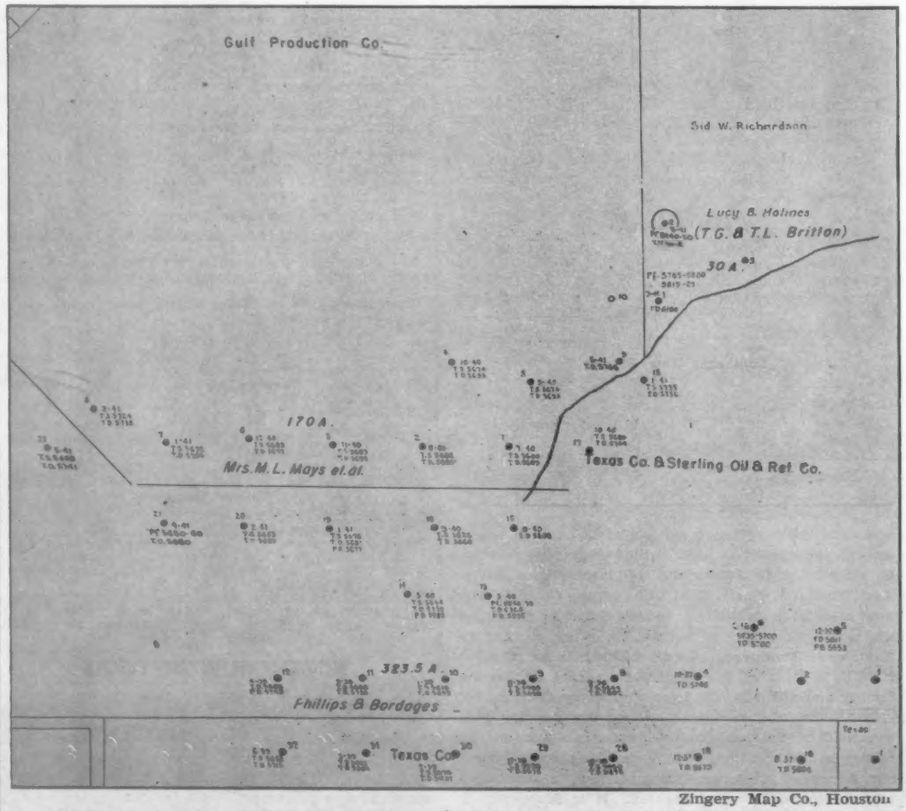
SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Lolita	3	115	17,183
West Ranch	2	165	11,343
Gas wells: Fields	1	.....	5,237
Dry holes: Fields	4	.....	25,817
Wildcats	1	.....	7,011
Total	11	.....	99,107

BRAZORIA COUNTY.—Strake Petroleum Co. 1 Griffith, located in the Halls Bayou area, Brazoria County, was showing for a producer as it cleaned into pits, flowing wash water, gas and oil through a $\frac{1}{2}$-in. choke. Tubing pressure was 1,500 lb. This well has been in the process of completion for the past several weeks, and is testing through perforated liner at 10,320-36 ft. The well is located in the H. P. Cayce Survey, about 2½ miles southwest of the Alta Loma field in Galveston County.

MONTGOMERY COUNTY.—The West Conroe gas field, Montgomery County, was converted into an oil field as Housh & Thompson 2 Clary, southeast of the discovery well was flowing at the estimated rate of 30 bbl. of 34-gravity oil per day while testing through a 5/64-in. choke. Tubing pressure was 1,675 lb. Production is from the Cockfield sand at 4,731-34 ft. The well is located in the William Allen Survey, and was drilled on a farmout lease from Gulf Oil Corp. This is the second Cockfield strike to be made in the district within the past 2 weeks. The completion revives interest in this particular formation which has been generally overlooked during the past few years in the

(Continued on Page 77)



Zingery Map Co., Houston

S. W. Richardson 2 Holmes (indicated by circle) completed the past week to open deep-sand production on north flank of the West Columbia field, Brazoria County

Oil Shows From Several Zones In Outpost East of Schuler

By GEORGE WEBER

SHREVEPORT, La., May 26.—South Arkansas remained in the spotlight last week, with several deep wildcats and outposts attracting interest. Wildcatting in the Wilcox trend of North Louisiana is quiet, but continued activity in leasing and exploration indicate further testing of the shallow horizon in the near future. Border counties of East Texas show some upturn in activity, with two new wildcats staked last week, and others to follow.

ARKANSAS

Attention is centered on the Crescent Drilling Co. 1 Burns, a 3-mile-east outpost to the Schuler field of Union County. The wildcat was carried to a total depth of 7,707 ft. into the top of the Smackover lime. Several oil shows were obtained at higher levels, but the Jones and Reynolds horizons proved disappointing.

Morgan sand showed oil at 5,533-48 ft. and other stray Cotton Valley sands also showed production possibilities. The Jones sand was topped at 7,445 ft., well above the oil-water contact in the Schuler field, but only 1½ ft. of oil sand was encountered, the remainder containing salt water. The Smackover horizon also showed salt water, in the first porous oolitic lime of the Reynolds member at 7,604 ft.

Operators have set 5½-in. casing at about 6,265 ft. to test the sands above that point, particularly at 6,093-6,110 ft. Jones sand, topped at —7,234 ft. shows a definite uplift east of the southeast extremity of Schuler, for it is 106 ft. higher than the most southeastern well in the field. Extent of this secondary structure cannot be estimated at this time but its existence has been proven by the test. This test may lead to further exploration in the area, particularly if the Crescent well makes a commercial producer in one of the upper sands.

Another important wildcat near proven production is McAlester Fuel Co. 1 Franks, about 5 miles east and southeast of the Dorcheat field. During the past week nothing of importance occurred. Operators are drilling for the Smackover lime. Several days ago a drill-stem test at 6,910-20 ft. showed 28 stands of 37.7° gravity oil, but the Cotton Valley prospect was passed up for a look at the deeper Smackover. It may later be tested for commercial production, but the porous lime at the top of the Smackover is the primary object of the test, and if successful there, it may mark a major extension to the Dorcheat field.

Arkansas Fuel Oil Co. encountered a show of oil in 1 McGaughy, an Ouachita County wildcat, about 6 miles northeast of the Stephens field. The drill-stem test taken at 2,095-2,105 ft. showed recovery of 60 ft. of drilling mud cut with oil and 210 ft. of mud on ⅝-in. chokes top and bottom, and with the tool open for 30 minutes. The show is in the Blossom sand. Operators are coring and drilling ahead.

The Stephens deep test, Fitzwater & McClerkin 1 C. C. Smart is flowing about 60 bbl. daily in heads, after tubing was run to 3,234 ft.

In Union County, Anthony & Co. (former operator was Sam Sebersky) cored from 2,240-50 ft. and recovered a total of 9 ft. 8 in. of sandy shale and marl, with oil saturation in the sand. Casing has been set. Cement is setting at 2,250 ft., the Nacatoch sand.

Fouke, a Paluxy field in Miller County, was extended ½ mile to the southwest, when Carter Oil Co. completed 1-B Sturgis, in the SE cor. 2-17s-27w, for a well making an initial of 20 bbl. an hour. This is the first drilling in the field this year, for following its discovery last year, failures defined the field on the east, southeast, and south.

The McKamie field of Lafayette County is currently one of the most active drilling areas in the state. Carter Oil Co. late last week made location for 1 Hanes in 25-17-24, about a mile west of the company's 1 Cornelius unit, still drilling, and the most westerly operation in the field. The McKamie structure indicates that production will extend to the west of present operations. Wells are drilled on a 160-acre spacing pattern, since the field is of the gas-condensate type.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
North Louisiana			
Oil wells: Sligo	1	83	3,140
Caddo	2	45	3,398
Homer	1	30	1,443
Nebo	1	185	3,818
Little Creek	1	115	3,710
Summerville	1	100	2,791
Dry holes: Nebo	1	.....	4,018
Olla	1	.....	1,830
Wildcats	2	.....	7,147
Total	11	558	31,295
Arkansas			
Oil wells: Fouke	1	480	3,706
East Texas Border			
Gas well: Joaquin	1	*28½	5,079
Dry holes: Smithland	1	.....	2,315
Wildcats	1	.....	4,214
Total	3	.....	11,608

*Million cu. ft., open flow.

ARKANSAS COMPLETIONS

Miller County

Fouke: Carter Oil Co. 1-B Sturgis, SE SE SE 2-17s-27w, 480 bbl., open tubing, T.P. 30 lb., C.P. 65 lb., T.D. 3,706 ft., perf. casing 3,581-89 ft., Sturgis sand 3,580-3,600 ft., Paluxy.

ARKANSAS DRILLING REPORT

Clark County

Coker, Christman & Grieves 1 Williams..... NE NE NE 7-11-20
T.D. 1,765 ft., fishing 400 ft., drill stem.

Columbia County

McAlester Fuel Co. 1 Franks.....SE SE 16-18-21
Drilling 7,397 ft.

Faulkner County

Cato Oil Co. 1 R. R. Harrell.....SE SW 35-4n-12w
T.D. 3,625 ft., S.D.

Howard County

Miller & Fletcher 1 Dierks Lumber Co. ..... SW SW 7-8s-28w
Drilling 305 ft.

Jefferson County

Patterson & Stratton 1 F. and D. Stratton..... SE NW NE 35-6s-9w
T.D. 720 ft., S.D. awaiting orders.

Lafayette County

Tide Water and Seaboard 1 Moore SW SE 29-17s-2w
Location.

Lonoke County

A. V. Riley 1 J. T. Gunter.....SE SE SE 17-5n-10w
T.D. 3,045 ft., S.D.

Ouachita County

Arkansas Fuel Oil Co. 1 McGaughy NW NW 6-15s-18w
Coring 2,305 ft.

Prairie County

Alvin E. Stark 1 Fidelity Mutual NE NE SW 16-2n-6w
T.D. 1,103 ft., testing.

Union County

Anthony & Co. (formerly Sam Sebersky) 1 Union Sawmill Co. .....SE NE NE 15-18s-14w
Set casing 2,250 ft., waiting on cement, cored 2,240-50 ft., sandy shale and marl, oil saturation in sand.
Crescent Drlg. Co. 1 Burns.....NE SW 13-18-17
T.D. 7,707 ft., running electrical log, to set casing and test oil shows.

EAST TEXAS BORDER

Two new wildcats were staked in Panola and Sabine counties, Texas, last week, to revive wildcatting in the border counties. Paul Pewitt has set surface casing on 1 Barton, 6 miles northeast of Hemphill in Sabine County, and Crow Drilling Co. will move in on 1 Frost Lumber Industries, 6 miles southeast of Deadwood, Panola County. Other wildcats are due for early spudding in Sabine, Panola, and Harrison counties. The two current tests in Bowie and Cass counties are failures. The Bowie test, Normandie Oil Co. 1 Powell, was abandoned at 4,214 ft., and the British American Oil Production Co. 1 East Texas Iron Association, Cass County, is idle at 4,314 ft.

EAST TEXAS BORDER COMPLETIONS

Bowie County

Wildcat: Normandie Oil Co. 1 E. Powell, John S. Herring Sur., T.D. 4,214 ft., dry.

Marion County

Smithland: Ralph C. Watson et al 1 W. Elliott et al, W. H. Burton Sur., T.D. 2,315 ft., dry.

Shelby County

Joaquin: Paul Pewitt 1 Joe Childress, William Snider Sur., 28,500,000 cu. ft. gas, open flow, R.P. 2,201 lb., T.D. 5,079 ft., 5½-in. casing 5,078 ft., perf. 5,060-64 ft.

EAST TEXAS BORDER DRILLING REPORT

Cass County

British American Oil Prod. Co. 1 East Texas Iron Association, L. Moren Sur., T.D. 4,314 ft., S.D. awaiting orders.

Marion County

A. H. Richardson 1 T. G. Allen, Robert Potter Sur., T.D. 2,590 ft., S.D. awaiting orders.

Panola County

Crow Drlg. Co. 1 Frost Lumber Ind., J. F. Johns Sur., first report.

Sabine County

Sturm & Womack 1-A Keith, L. Grace Sur., T.D. 6,545 ft., S.D. awaiting orders.
Paul Pewitt 1 Mrs. H. E. Bartor John S. Lacy Sur., 13-in. casing 100 ft., waiting on cement, first report

San Augustine County

Roper & Todd 1 Long Bell Lumber Co., N. Hyden Sur., T.D. 3,633 ft., fishing drill pipe.

NORTH LOUISIANA

The deep test east of the Lisbon field, Lincoln Parish, drilled by the Big West Drilling Co. encountered additional sands of the Cotton Valley formation last week, but showed poor possibilities of opening new production or extending current limits in the deep formation. Two weeks ago the test topped Vaughn sand at 8,571 ft., testing salt water, and last week the Simmons sand was encountered at 9,083 ft., and cores showed a slight odor of gas. A brown sand body was found at 9,100 ft., but no shows were reported from it. With hole bottomed at 9,147 ft., operators are running an electrical survey which will check the data obtained by coring the Cotton Valley.

North of Lisbon, Harold A. Wright abandoned 1 Rainach after finding no shows in the lower Glen Rose formation.

NORTH LOUISIANA COMPLETIONS

Bossier Parish

Sligo: Triangle Drlg. Co. 2-A Skannal, NW SW 13-17-12, 83 bbl., pump, T.D. 3,140 ft., 5½-in. casing 3,117 ft., Glen Rose.

Caddo Parish

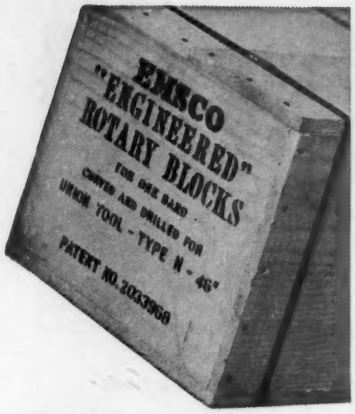
Caddo: Hugh Carney 1 Ark. Fuel Oil Co., NE SE SW 1-20-16, pumped 10 bbl., T.D. 1,540 ft., 7-in. casing 1,388 ft., 4,000 gal. acid, chalk rock.
C. C. Crews 11 Stiles, NW NW SE 33-21-16, pumped 35 bbl., T.D. 1,858 ft., 6⅝-in. casing 1,845 ft., chalk rock.
P. D. & E. Oil Co. 1 Burton, NW SE NW 36-21-16, old well deepened from 1,548 ft., pumped 15 bbl., T.D. 2,293 ft., 7-in. casing 1,510 ft., chalk rock.

Claiborne Parish

Homer: Maritzky & Bibby 1 Shaw, NE NE NE 24-21-8, pumped 30 bbl., T.D. 1,443 ft., 6⅝-in. casing 1,339 ft., Blossom sand.
Wildcat: Harold A. Wright 1 Rainach, SW NE 16-22-5, T.D. 5,510 ft., dry.

La Salle Parish

Wildcat: Milton J. Houston et al 1 Gross, NE NE 19-8n-3e, T.D. 1,637 ft., salt water.
Nebo: H. L. Hunt 20-A Goodpine, NE SE 18-7-3e, T.D. 4,018 ft., salt water.
H. L. Hunt 21-A Goodpine, NE SE 17-7-3e, 185 bbl., gas lift, 6 per cent salt water, T.P. 75 lb., C.P. 260 lb., T.D. 3,818 ft., Wilcox.
Olla: Placid Oil Co. 1 Talilfero, SE NE 26-10-2, T.D. 1,830 ft., cratered and abandoned.
Little Creek: Placid Oil Co. 3-B Goodpine, SE NE 32-9n-2e, 115 bbl., 60 per cent salt water, 12/64-in. choke, T.P. 480 lb., C.P. 600 lb., T.D. 3,710 ft., 7-in. casing 3,710 ft., perf. 2,420-24 ft., Wilcox.
Summerville: Placid Oil Co. 4 Tremont, NW NW 26-9n-2e, 100 bbl. 6 per cent salt water, 16/64-in. choke, C.P. 800 lb., 7-in. casing 2,784 ft., T.D. 2,791 ft., Wilcox.



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Among the Drilling

OSAGE Drilling Co., of Oklahoma City, Okla., is moving rotary to the old J. W. Murchison 1 M. T. Sawyer, a hole temporarily abandoned on the north edge of the Wasson field, Yoakum County, Texas. The drilling firm will deepen the old well, possibly to 7,000 ft., in an effort to pick up deeper pay.

HENSHAW Brothers, San Antonio, Tex., contractors, have assigned a rig to Jim Wells County, Texas, for exploration of a 192.49-acre lease procured on a farmout agreement from Humble Oil & Refining Co. The first operation, which has been spudded, is on the Mrs. Francis Clark farm in the Los Presenos grant.

BELMONT QUADRANGLE Drilling Corp., Bradford, Pa., contracting firm, has completed the largest Oriskany sand gas producer in the New York-Pennsylvania boundary field in more than a year. The well gaged 16,215,000 cu. ft. daily. It is on Steuben County land in Cameron Township, near Jasper, N. Y. The well was drilled to 3,903 ft., 7 ft. in the Oriskany.

RHODES Drilling Co., Abilene, Tex., has moved rotary tools to location about 10 miles southeast of that city in Taylor County, Texas. where a Palo Pinto lime test will be drilled for Merry Brothers & Perini on the Sam DeSpain farm.

NICKLOS Drilling Co., Houston, Tex., received contract from Texas Co. for another test in the Horseshoe Bayou field, St. Mary Parish, Louisiana, and rig is being moved to the location. Three rotaries are running for the Continental Oil Co. in the Ville Platte field, Evangeline Parish, Louisiana.

UNGREN & FRAZIER, contractors and producers of Abilene, Tex., are scheduled to deepen the prospective wildcat discovery test being drilled for W. W. Fondren in Jones County, West Central Texas. About 2 weeks ago the wildcat, located in the C. P. Hodges lands, Section 32, Block 18, T.&P. Survey, indicated the opening of a new field from the Swastika lime horizon at 2,954-57 ft., however, water was found in deepening into the section. The operator indicated that the test would be drilled deeper.

H. B. HERRING, Dallas, Tex., has been awarded contract to drill a recently staked 5,000-ft. wildcat test in Martin County, West Texas, for Wiggins & Hyde, Fort Worth operators. It will be 1 M. J. Stimson and E. S. Burley, located on a 20,000-acre block out of which spreads have been taken by several major companies. It is spotted 1,320 ft. from the south and west lines of Section 4, Block 38, Township 1s, T.&P. Survey, about 14 miles northwest of the town of Stanton and about ½ mile from the Midland County line. Materials have been moved in for immediate drilling.

HOUSH & THOMPSON Drilling Co., Houston, Tex., opened crude production from the Cockfield sand in the West Conroe gas field, Montgomery County, Texas, with the completion of its 2 Clary, southeast of the discovery well. The completion was made in sand bottomed at 4,734 ft. and the well is flowing at the estimated rate of 30 bbl. of 34-gravity oil daily through a 5/64-in. choke. Two other rotaries are located in the Eola and Raceland fields for Gulf Refining Co., and Harry Fotiades.

S. C. HERRING, Abilene, Tex., contractor, has started drilling operations on a new Jones County, Texas, test for H. W. Lee of Abilene and W. D. Brookover of San Antonio, Tex. The test is an east offset to Harry Hines et al 1 Wimberly, discovery well, and is on the Church farm in the Goodwin Subdivision 87, De Witt County School Land Survey.

ZEPHYR Drilling Co.'s vice president and treasurer, Frank G. McClintock, of Tulsa, left last week end for Washington, D. C., where he will become a member of the priorities division of the Office of Production Management.

G. A. Gardner, tool pusher, and C. H. Carroll, driller, for the Dixie Drilling Co., Inc., of Dallas, Tex., on the derrick floor of one of the company's rigs drilling for the Texas Co. in the Paradis field of Texas Gulf Coast

B. G. BYARS, of Tyler, Tex., has moved a heavy-duty rotary to the Guilden and Becker 26.7-acre tract in the M. Culberson Survey, Smith County, Texas, to drill a Travis Peak test for Marvin H. McMurrey et al of Tyler.

UNION Drilling Co., Mount Pleasant, Mich., at last reports was rigging up standard tools at 1,506 ft. at the Sun Oil Co. 1 Linaberry in Grout Township, Gladwin County, Michigan. In Beaverton Township, Gladwin County, Union was drilling below 1,300 ft. at the Sun 2 Harry Tope, located in SE NW NW 36-17n-2w. In Edenville Township, Midland County, the contractor was drilling below 4,060 ft. at the Sun 2-A State-Edenville after topping the Dundee at 3,798 ft.

GIBSON Drilling Co., New Mexico drilling firm, has spudded a wildcat for Nick Manetas on the Lane tract, 1,980 ft. from the north and 660 ft. from the east lines of Section 13-21s-28e, about 5½ miles south of the Getty field, Eddy County, New Mexico.

PATRICK & TYRELL Drilling Co., Houston, Tex., is nearing the pay in the Ville Platte field, Evangeline Parish, Louisiana, and in the Golden Meadow field, La Fourche Parish, another producer was completed for the Texas Co.

CLIFF NEELY, Bay City, Mich., is moving in rotary equipment to drill W. C. Mee 3-B Seignious in SW SE SW 3-20n-5e, Arenac County, Michigan. This is the first Clayton Township activity in several months. In the Adams field of Arenac County, the contractor was testing the Rayburn & Major 1 Codner at a total depth of 3,001 ft. after topping the Dundee at 2,877 ft. with an oil show at 2,996 ft. The indicated producer is located in SE NE NW 22-19n-3e.

OAKWOOD Drilling Co., headed by R. P. Coats of Midland, Tex., has been awarded contract to drill the J. E. Redmond and J. L. Greene 1 Iowa Realty Trust, a projected 6,000-ft. wildcat test to the Ellenburger lime. Location is about 2 miles north of a small Ellenburger discovery well completed on the Mary Heiner tract last year. The new wildcat is 668 ft. from the southeast and 1,979

Contractors

ft. from the southwest lines of Section 29, Block 10, H.&G.N. Survey, Pecos County, Texas.

S. W. RICHARDSON, Fort Worth, Tex., opened deep-sand production on the north flank of the old West Columbia field, Brazoria County, Texas, with the completion of his 2 Holmes, which is flowing from sand at 8,244-50 ft. This is the deepest production found around this salt structure and the discovery is expected to result in additional deep test being drilled around the flanks of the structure. Rig from the completed well is being moved a short distance southeast for 3 Holmes.

H. J. DeARMAN, Houston, Tex., has reached a depth of 6,000 ft. on an interesting semiwildcat test located in the old Bayou Blue field, Iberville Parish, Louisiana. This is an 8,000-ft. test which is being drilled for Union Sulphur Co. In Rapides Parish, Chamblee & Pitts 1 Lee Lumber Co., a wildcat located in the Catahoula Lake area, is drilling below 4,700 ft. In northern Louisiana, and located in Natchitoches Parish, a 4,000-ft. Wilcox test is being started for Clark & Cowden Drilling Corp.

ED SHIELDS, drilling contractor of Mount Pleasant, Mich., was drilling below 2,100 ft. at the Socony-Vacuum Oil Co., Inc., 1 Bandeen at last reports. The 1 Bandeen is located in Fremont Township, Isabella County, Michigan, in C S½ SE NW 21-13n-5w. In the Salem field of Allegan County, Michigan, the contractor was drilling below 1,100 ft. at the Socony-Vacuum 5 Weber and was testing after acidization at 1,597 ft., total depth, in the Socony-Vacuum 1 J. Thomas.

ROWAN Drilling Co., Fort Worth, Tex., is planning a wildcat test on the B. H. Willias farm, 4 miles southwest of Nome in Liberty County, Texas. The test is to be drilled in the southeast corner of an 80-acre tract in Section 7, H.&T.B. Survey and may be carried to 8,500 ft.

PARKER Drilling Co., Midland, Tex., has acquired a farmout lease from H. B. Friedman consisting of the west 280 acres of the south 480 acres of Section 24, Block 3, Public School Land, in the Brashara area of Winkler County, Texas, and will start a drilling operation on the property in the near future.

FRANKLIN & TIDEMANN, Houston, Tex., are moving a rotary to Lavaca County, Texas, for Herton Oil Co. 1 Hohmann, a 6,500-ft. Wilcox test located southeast of Moulton in the William Taylor Survey.

CROW Drilling Co., Shreveport, La., is to drill a wildcat test on Frost Lumber Co. acreage in Panola County, Texas. It is southeast of Carthage, Tex., in the Thomas Kelly Survey.

Gulf Refining Co. drilling crew in Grand Bay field, Plaquemines Parish, coastal Louisiana: Paul Dejean, L. A. Dunn (driller), William Jackson, A. P. Gautreaus, M. E. Wilkinson, and L. A. Didek (derrick man)

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Deep Development Is Assured By Well at Anse La Butte

By F. L. SINGLETON

NEW ORLEANS, La., May 26.—Additional deep development around the flanks of the Anse La Butte dome, St. Martin Parish, is anticipated following the completion of W. R. Davis Co., Inc., 2 Voorhies which extended production about 1½ miles east and opened production from a new and deeper sand. Total depth of the well is 9,449 ft. Completion was made by perforating casing at 9,430-40 ft. On a 24-hour gage it flowed 535 bbl. of 33.7-gravity oil through a 10/64-in. choke. Tubing pressure was 1,800 lb., and casing pressure 1,850 lb.

This is the second well to be drilled on this lease, being located a short distance from 1 Voorhies which cored sufficient showings in the same sand section to set casing for a production test, but the well was later abandoned. The company is moving the rig about 500 ft. south of the producer for 3 Voorhies in 72-9s-5e. Flank production around this structure was opened the past year and at the present time it is one of the most active fields in the district.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Fields	16	4,115	129,402
Gas wells: Fields	1	.....	11,165
Dry holes: Fields	3	.....	15,181
Wildcats	2	.....	21,513
Total	22	.....	177,261

AYOYELLES PARISH.—Operators interested in the Sparta-Wilcox trend sector were watching the results of a scheduled production test of Cockburn Oil Co. et al 1 G. W. Snowden located in 22-3n-5e, northern Avoyelles Parish. This is an old well temporarily abandoned after drilling to a total depth of 7,210 ft. Five and one-half-inch casing was cemented at 6,774 ft. after an electrical log and a series of sidewall cores showed favorable indication at intervals from 6,674-6,702 ft.

Another abandoned well which is scheduled to be deepened is Crosby Drilling Co. et al 1 Phillips located in the Glenmora area, Rapides Parish. This well was abandoned as dry in the upper Wilcox at a depth below 8,000 ft., and it is reported that the hole will be deepened to 10,500 ft. The area has been worked extensively with geophysical instruments by the California Co. which farmed out the acreage for drilling.

IOWA FIELD.—In the Iowa field, Calcasieu-Jefferson Davis Parish, Shell Oil Co., Inc., was attempting to complete 33 Heyd in the 8,800-ft. horizon. Total depth of the hole is 9,000 ft., and the production test is being made at 8,788-99 ft. Several wells drilled below the regular 8,200-ft. horizon have logged this same sand but no successful completion has ever been made. Two other operations were nearing the pay; Magnolia 8 Wait is drilling below 8,200 ft., while Stanolind 1 E. S. Willet is drilling in shale below 8,256 ft.

New Wildcats

Locations for several interesting wildcat operations were announced. In the East Most Lake area, Calcasieu Parish, Pan American Production Co. staked location for 1 Louisiana Farm & Livestock Co. in the SW cor. 8-11s-9w. Acreage was acquired from Shell Oil Co., Inc., on a farmout deal. Approximately six tests have been drilled in the general area and protection acreage is held by several companies.

East of the town of Oberlin, Allen Parish, W. T. Burton is moving in material for 1 Calcasieu National Bank in 21-5s-3w. This prospect was discovered by Gulf Oil Corp. in 1937 and additional geophysical work has been done at intervals by other companies.

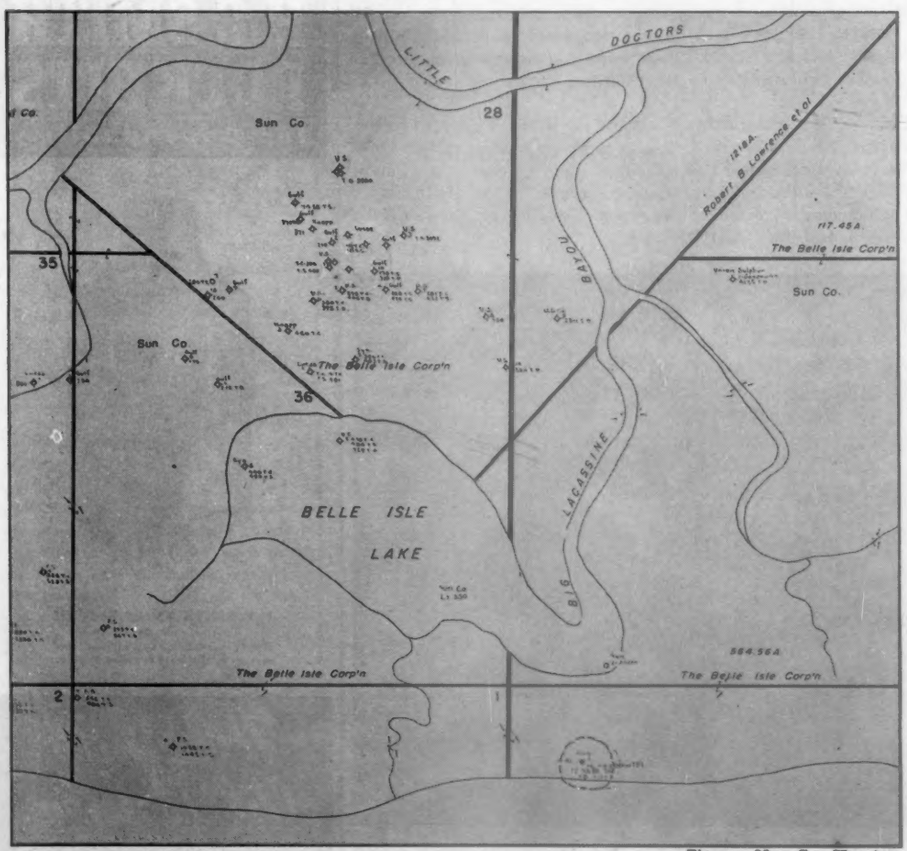
Phillips Petroleum Co. is reported to have made tentative location in the Lake Chicot area, St. Martin Parish. The well is expected to be drilled in 24-11s-9e. Amerada Petroleum Corp. and Louisiana Land & Exploration Co. control protection acreage in the area.

Locations for two more tests were announced for the east flank of the Pine Prairie field, Evangeline Parish, where deep-sand production was recently established. The locations are Stanolind 1 Ardoin in 37-3s-1w, south of C. I. Production Co. 1 Evangeline Land & Mineral Co., the discovery well, and Gulf 1 Evangeline Land & Mineral Co. in the same section. Additional tests are expected to be started in the near future as protection around the discovery is held by several companies.

BARATARIA FIELD.—In the Barataria field, Jefferson Parish, California Co. 7 Fleming plantation is shut down at a depth of 10,800 ft., and it is reported that an electrical log showed favorable indication in a sand section below 10,000 ft. Main production at the present time is from two sands at 8,200 ft. and 8,700 ft.

Phillips Petroleum Co. established 11,000-ft. production in the Erath field, Vermilion Parish, as 1 Dugas, about 1,300 ft. east of the discovery, was completed flowing 5½ bbl. of 43-gravity oil per hour through a 12/64-in. choke. Tubing pressure was 4,150 lb. Production is through perforated casing at 11,618-19 ft. This is the deepest crude production to be found in the district, and the completion opens the third sand for the field.

Approximately 1 mile southeast of this well, Texas 1 Broussard is reported to be flowing gas and distillate from the same sand, and the well may be killed and recompleted. It is reported that 26 ft. of saturated sand was logged in the 11,000-ft. section. Completion was made by perforating casing at 11,601-07 ft.



Zingery Map Co., Houston

Plat of Belle Isle dome, St. Mary Parish, showing location of Sun 1 Belle Isle Corp., recently completed in deep sand on south flank of structure

LOUISIANA GULF COAST COMPLETIONS

Acadia Parish

Jennings field: Shell 15 Conover Community, 603 bbl., ¼-in. choke, perf. casing 7,690-7,740 ft., T.D. 8,305 ft.

North Crowley field: Vincent & Welch 1 Fisher, 216 bbl., 9/64-in. choke, T.D. 8,827 ft.

Cameron Parish

Pecan Lake field: Superior Oil Co. of California 1-B Miami Corp., 26 bbl., 20/64-in. choke, perf. casing 10,174-84 ft., T.D. 10,554 ft.

Sulphur field: Union Sulphur Co. 3 Noble, 72 bbl., pumping, T.D. 7,285 ft., P.B. T.D. 6,465 ft.

Evangeline Parish

Ville Platte field: Continental 1 Ortego, 110 bbl., ½-in. choke, perf. casing 8,964-82 ft., T.D. 10,013 ft.

Gulf 2 Joe Vidrine, 337 bbl., ½-in. choke, perf. casing 10,092-10,118 ft., T.D. 10,118 ft.

Iberia Parish

New Iberia field: William Helis 11 Bolivar, dry, T.D. 1,160 ft.

William Helis 11 Schwing, dry, T.D. 4,405 ft.

Iberville Parish

St. Gabriel field: George Echols 1 State Prison farm, dry, T.D. 9,616 ft.

Jefferson Davis Parish

Welsh field: Union Sulphur 1 Gray, 209 bbl., 11/64-in. choke, perf. casing 6,534-40 ft., T.D. 6,922 ft.

Westwego field: Reese E. Carter 1 Craven, 146 bbl., ⅝-in. bottom-hole choke, ¼-in. choke on top, perf. casing 8,996-99½ ft., T.D. 9,755 ft.

Plaquemines Parish

Delacroix Island field: Texas 1 State Delacroix Island, gas well, perf. casing 8,915-35 ft., T.D. 11,765 ft.

Grand Bay field: Gulf 14-A Grand Prairie Levee district, 438 bbl., ½-in. choke, perf. casing 8,712-22 ft., T.D. 8,740 ft.

Octave Pass field: Texas 1 State Octave Pass, 345 bbl., ¼-in. choke, perf. casing 10,750-10,802 ft., T.D. 11,494 ft.

Potash field: Humble 50 Orleans Levee district, 389 bbl., ½-in. choke, perf. casing 8,369-8,402 ft., T.D. 8,712 ft.

St. Landry Parish

Port Barre field: McDannald Oil Co. 2 Sibille, 333 bbl., 12/64-in. choke, perf. casing 5,580-5,600 ft., T.D. 5,655 ft.

St. Martin Parish

Anse La Butte field: W. R. Davis Co., Inc., 2 Voorhies, 535 bbl., 10/64-in. choke, perf. casing 9,130-40 ft., T.D. 9,449 ft.

Stanolind 4 Bergeron, 48 bbl., 23 hr., ½-in. choke, T.D. 3,949 ft.

St. Mary Parish

Charenton field: William A. Brown 1 Parro, 180 bbl., 9/64-in. choke, T.D. 6,717 ft., P.B. T.D. 5,972 ft.
Wildcat: E. G. Bateman 1 Foster, dry, T.D. 10,991 ft.

Terrebonne Parish

Wildcat: Bering 1 W. A. Land, dry, T.D. 10,522 ft.

LOUISIANA GULF COAST DRILLING REPORT

Beauregard Parish

Atlantic 1-D Rice Land & Lumber Co., south of Neale field, 30-4s-10w, drilling shale 6,915 ft.
Humble 1-B Edgewood Land & Logging Co., 25-6s-10w, drilling shale 7,356 ft.

Calcasieu Parish

Gulf 1 Calcasieu National Bank, Hayes prospect, T.D. 10,534 ft., milling on collapsed 7-in. liner.

Rapides Parish

Chamblee & Pitts 1 Lee Lumber Co., 6-5n-3e, drilling shale 3,396 ft., top Wilcox 3,050 ft.

Texas Gulf Coast

(Continued from Page 72)

search of deeper production in the Wilcox formation.

In the same county, and located southwest of the discovery well of the Lake Creek field, Superior Oil Co. of California Co. 2 McWhorter is coring in sandy shale below 8,816 ft. after topping the Wilcox at 8,490 ft. Another Wilcox test which is being watched with interest is David B. MacDaniel 1 H. O. Baldwin in the Taminia area, which is coring in sandy shale below 9,890 ft. The well is situated in the Walker County School Land Survey and is being deepened after testing several promising showings in the Wilcox.

CHAMBERS COUNTY.—A second producer for the Fisher's Reef field, offshore from Chambers County, looms as Humble 10-C-46 State, about 1,200 ft. northeast of the discovery well, cored sand showing oil and gas at intervals from 8,943-63 ft., the total depth, and casing is expected to be cemented for a production test. Several attempts to extend production have failed, and the producing area of the structure is expected to be limited. To the south in the Red Fish Reef field, Humble 20-A 248 State, topped the Frio formation at 8,598 ft. and is drilling ahead in sandy shale below 9,637 ft.

In the Fig Ridge field, Chambers County, Sun 1 Mackelburg, north of the discovery well was being watched with interest in view of a sand and sandy shale section at 9,544-62 ft. which showed oil and gas in side-wall cores. The sand section is several hundred feet deeper than the discovery well, a gas-distillate producer, completed in sand at 8,800 ft.

JACKSON COUNTY.—A northeast extension of several hundred feet was assured the Lolita field, Jackson County, as Cox & Hamon 1 McCall recovered 1,000 ft. of pipe-line oil on a 10-minute drill-stem test at 5,949-51 ft., and 5½-in. casing was cemented at 5,903 ft. for completion. Total depth is 6,424 ft. Location is in the I.&G.N. Survey, Section 12. The well was drilled on a farmout lease from Magnolia Petroleum Co. The showing of the well opens considerable acreage for development and will add additional operators to the field as trend of development heretofore has followed a west and southwest direction.

HARRIS COUNTY.—In the northwest extension area of the Dyersdale field, Harris County, Jack Frazier is attempting to open production from the Miocene sand as 2 S. M. Dwyer is reported to have flowed pipe-line oil for 15 minutes when tested through perforated casing at 3,480-95 ft. Total depth of the well is 4,153 ft. with 5½-in. casing cemented at 3,500 ft.

WILLIS AREA.—Location for a Wilcox test in the Willis area, Montgomery County, was announced by Continental Oil Co. The well is 1 Thomas S. Foster located in the De la Garza Survey on a block of approximately 6,500 acres which was assembled by Sturm & Womack. Contract depth of the well is 8,500 ft.

In the West Silsbee area, Hardin County, Republic Production Co. is preparing to drill 2 Elliott, a northeast offset to 1 Elliott, recently completed to open a new producing area, or an important extension to the field, about 1 mile southwest of production.

TEXAS GULF COAST COMPLETIONS

Brazoria County

Damond Mound: Pan American 2 Koontz, dry, T.D. 7,903 ft.
West Columbia: Texas 98 Hogg, 320 bbl., ¼-in. choke, sand 2,207-43 ft., T.D. 2,243 ft.

Colorado County

Garwood: W. R. Davis 1-B Brownston, 310 bbl., ⅞-in. choke, perf. casing 6,104-08 ft., T.D. 6,310 ft.

Fort Bend County

Thompson: Gulf 6 Scanalan, dry, T.D. 8,427 ft.

Hardin County

Sour Lake: Chambers & Edwards 88 Mirror, 108 bbl., pumping, top sand 1,583 ft., T.D. 1,590 ft.

Jackson County

Cordele: Frost & Dunnam 2 Pressley, 107 bbl., 11/64-in. choke, perf. casing 2,741-46 ft., T.D. 3,010 ft.
Lolita: Humble 5-B L. Ranch, 24 bbl., ¼-in. choke, sand 5,932-38 ft., T.D. 5,398 ft.
Magnolia 2 S. A. Abbott, 17 bbl., 3 hr., 7/64-in. choke, sand 5,939-42 ft., T.D.
Magnolia 19 Mitchell, 74 bbl., ⅛-in. choke, perf. casing 5,288-91 ft., T.D. 5,303 ft.
West Ranch: Magnolia 153-A West, 70 bbl., 5/64-in. choke, perf. casing 5,558-72 ft., T.D. 5,579 ft.
Magnolia 154-A West, 95 bbl., 5/64-in. choke, perf. casing 5,757-63 ft., T.D. 5,764 ft.

Liberty County

Hull: D. & L. Production Co. 4 Peveto, 74 bbl., pumping, T.D. 5,840 ft., plugged back, T.D. 5,502 ft.
Esperson: General Crude 44-A Esperson, dry, T.D. 5,840 ft.

Matagorda County

North Markham: Ohio 5 J. C. Carlson, 182 bbl., ⅛-in. choke, perf. casing 7,705-14 ft., T.D. 7,974 ft.

Tyler County

Rockland: Rockland Oil Co. 1 Southwestern Lumber Co., dry, T.D. 3,647 ft.

Wharton County

Hilje: Rancho Oil Co. 1 Jorsak, gas well, perf. casing 5,223-35 ft., T.D. 5,237 ft.
Withers: Texas 73-B Pierce, 69 bbl., ⅛-in. choke, T.D. 5,549 ft.
Wildcat: Lon Cron 1 W. C. Tyrell, dry, T.D. 7,011 ft.

Kentucky Fields

(Continued from Page 65)

Knott County: United Carbon 14 Kycoga Land Co., T.D. 3,050 ft., shale, 84,000 cu. ft. gas.
Martin County: Warfield 5008 Mable S. Agassiz, Middle Fork, T.D. 3,026 ft., 60,000 cu. ft. gas, shale, 84,000 cu. ft. gas in Big lime.
Virginian Gas & Oil Co. 1269-V Federal Gas & Oil Co., Coldwater Fork, dry 1,260 ft.
Pike County: Colony C. & C. 28, T.D. 1,642 ft., Maxon, 1,309,000 cu. ft. gas.
United Carbon 888 Edward Bevins, Levisa Fork, T.D. 3,495 ft., 467,000 cu. ft. gas in shale, 230,000 cu. ft. gas in Maxon.
United Carbon 893 Republic Steel Corp., Hopkins Creek, T.D. 3,804 ft. in shale, gas.
United Carbon 894 A. D. Campbell No. 1, upper Chloe, T.D. 3,497 ft. in shale, gas.
Warfield 4987 Mattie Fidler, Levisa Fork, T.D. 3,676 ft. in shale, 119,000 cu. ft. gas.

WESTERN KENTUCKY

OWENSBORO, Ky., May 26.—Ten new operations were announced or started last week in six western Kentucky counties. Five dry holes were reported. W. E. Hupp and Sohio have ceased operations on 1 M. K. Rice which was carried to 2,180 ft. in the Spottsbille district, Henderson County, without success.

WESTERN KENTUCKY COMPLETIONS

Daviess County

Cane Run: Cumberland 10 W. E. Ivy, 10 bbl., Jett sand, T.D. 720 ft., completed as water-intake well.

Henderson County

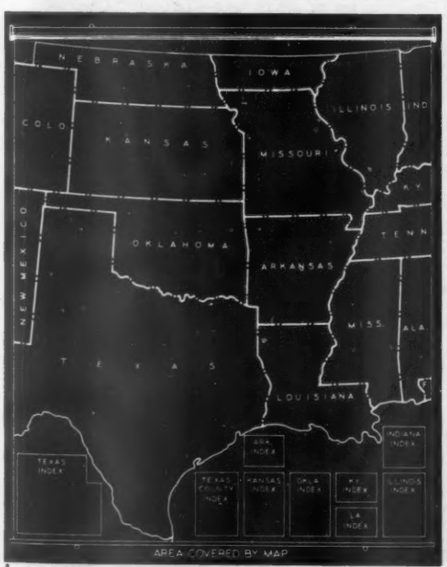
Hebbardsville: W. E. Hupp 3 Otto Busby, 60 bbl., Jett sand 1,555-60 ft., T.D. 1,565 ft.
Spottsville: Hupp and Sohio 1 M. K. Rice, dry hole, T.D. 2,180 ft.

McLean County

Maxwell: Callas 1 W. C. Wimp, dry hole, T.D. 980 ft.

Ohio County

Oaks: Cumberland 42 Rolla Richards, dry hole, T.D. 328 ft.
Davidson Station: Jack Stewart 3 T. A. Smith, dry hole, T.D. 346 ft.
Sunnydale: George Williams 4 Russell, dry hole, 45-qt. shot 234-40 ft., T.D. 300 ft.
Taffy: Dehart 4 Arthur Davis, 5 bbl., 30-qt. shot in Jett sand 574-84 ft., 20-qt. shot 610-25 ft., T.D. 644 ft.



OFFICIAL NOMENCLATURE MAP OF MID-CONTINENT AREA

SHOWS: Oil fields in green and gas fields in red, hand colored. State indexes at bottom of map giving location of each field and official field names as designated by the various State Nomenclature Committees, Cities, Towns, County Seats, Townships, Ranges and principal streams. Sketch above shows area covered by map. Size: 32" wide by 36" high. Scale: 1 inch equals 12 miles. Map is obtainable in cylindrical steel case with spring roller, Japanned in dark green, diameter 3", length of case 37". Rolls in and out same as a curtain.

Folder giving complete description and prices sent on request.

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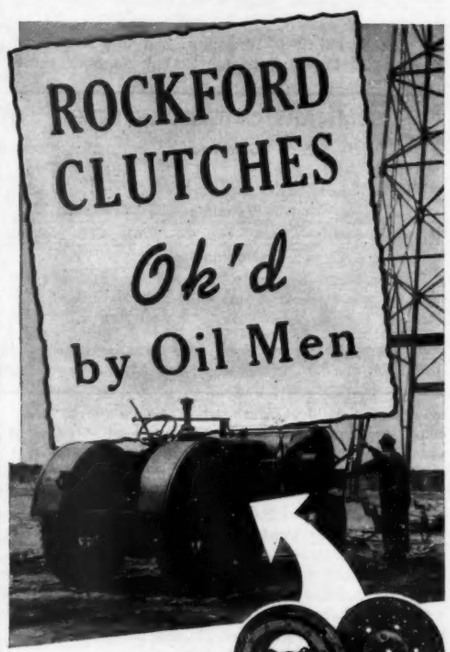

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Over-Center Spring-Loaded and Pullmore Clutches

By

T. R. INGRAM

Morrison Shows Gas in Test Southeast of Lance Creek

DENVER, Colo., May 26.—The Hiawatha gas field in northwestern Colorado which has been turning to oil the past 3 years had another oil-well completion last week in Mountain Fuel Supply 7 Florence Wilson which produced 230 bbl. a day in the Wasatch sand. In the same field, Mountain Fuel 8 Wilson is showing for a producer. The Rangely field had two completions in shallow sands. Raven Oil & Refining Co., 27 Government made 75 bbl., and 30 Government 8 bbl. daily.

Lance Creek field, Wyoming, had one completion in Argo Oil Co. 10 Ford for 22 bbl. an hour before acidizing. A wildcat southeast of Lance Creek, Western Petroleum 1 Mosier, had another good show of gas in the Morrison sand. Enalpac Oil 3 Pauline O.P.C.-1 in Oregon basin made 150 bbl. initial on the pump.

Montana operators completed three oil wells and one gas well. In Cut Bank, Kulberg 3 Tribal-185 made 198 bbl., Glacier Production 3 Connolly swabbed 17 bbl., and Glacier 4 Lookhoff swabbed 189 bbl. in 12 hours. The gas well was Montana-Dakota Utilities 317 Sauby in Kevin-Sunburst, gaging 3,500,000 cu. ft.

The Red Cactus test on Navajo lease, southeast of Rattlesnake, Northwest New Mexico, had water in the Dakota and was abandoned.

There were nine new operations, the most important being another test to the Tensleep in East Ferri field, by Sinclair-Wyoming, offsetting the discovery well.

● SUMMARY OF COMPLETIONS ●

	No.	Bbl.	Footage
Colorado			
Oil wells: Fields	3	313	5,442
Wyoming			
Oil wells: Fields	2	678	9,188
Montana			
Oil wells: Fields	3	404	8,737
Gas wells	1	*3.5	1,238
Total	4	.....	9,975

*Million cu. ft.

COLORADO

El Paso County

F. F. Hintze 1 State.....CEL SE SE 16-11s-60w
Drilling 2,052 ft., carrying 6⅝-in.

Huerfano County

I. E. Sideman-White 1-X Martinez.....
C SW NE 33-26s-67w
S.D. 1,760 ft.

Jefferson County

Ruby Hill 1 Braden.....SE SE SE 24-4s-69w
Drilling below 4,814 ft. after landing 4½-in. on bottom.

La Plata County

E. B. Klem 1 Olbert.....NW SW 9-35n-12w
Drilling 4,081 ft.
Nick Spatter 1-X Bryce.....SW SW 31-33n-9w
S.D. 4,428 ft.

Las Animas County

Barney 1 Dutto-Marchiso.....NW NW 32-33s-62w
S.D. 1,420 ft. for equipment delayed by floods.

Moffat County

Mountain Fuel Supply 7 Florence Wilson, NE SW NW 23-12n-100w, Hiawatha, completed in the Wasatch at 2,572 ft., total depth, and tested 230 bbl. first 24 hours. Seven-inch was set at 2,562 ft., and 2½-in. tubing at 2,375 ft. Oil sands were at 2,043-2,102 ft. and 2,259-2,341 ft. A water sand was encountered at 2,514-50 ft.

Same company's 8-A Wilson is a near completion, and showed for around 200 bbl. in the first sand. It is drilling ahead.

Test of Mountain Fuel 3-A Musser at Powder Wash, which showed for a producer at 5,270-83 ft., has been delayed by a recementing job. The 7-in. was set at 5,691 ft. and perforated at 5,508-17 ft.

Mountain Fuel has let contract to Tom Jenks, of Casper, for an 8-in. 17-mile gas line from Powder Wash to connect with the main 16-in. line running northward from the Hiawatha field. Plans provide for 32 miles of 8⅝-in. loop line 65 miles southeast of Rock Springs, Wyo.

C. R. Privett 1 Strelling.....NE SE SE 12-5n-96w
Ready to spud.
Mountain Fuel Supply 8 Florence Wilson.....
C SE NE 22-12n-100w
Drilling 2,361 ft.
Mountain Fuel Supply 3 Musser.....
CNL NW SW 5-11n-97w
T.D. 5,700 ft., recementing 7-in. at 5,697 ft.

Rio Blanco County

Two completions in the shallow sands in the Rangely field were reported in the Raven Oil & Refining Co. 27 Government, SE NW NE 31-2n-102w, for 75 bbl., 41 gravity, at 1,370 ft., and 30 Government, SE NW NE 31-2n-102w, at 1,500 ft., for 8 bbl. initial.

John Bockhold 1 Gentry.....Lot 8, 3-1n-102w
Drilling 500 ft., first report.
Buford Oil 1 Government.....C SW SW 16-1n-91w
T.D. 4,387 ft., will resume June 1.

Routt County

Craig-Moore 1-X Erwin.....C SW NE 33-7n-85w
Drilling 2,805 ft. in red beds.

WYOMING

Big Horn County

Ohio 2-A Hoskins.....SE SE SE 15-56n-97w
Spudded.

Campbell County

Continental-Texas Gulf 1 Knapp NE SW SE 4-56n-69w
Drilling 1,428 ft.

Carbon County

Sinclair-Wyoming 5-E East Mahoney, a new operation on the East Mahoney dome, is a west offset to the discovery in the Tensleep, completed early in 1940 at 4,326 ft., total depth, for 54 bbl. in 24 hours of 42-gravity oil in the Tensleep, after plugging back to 4,295 ft.

Same company is moving in for 21 Wertz, a north offset to 16 Wertz, an outside well on the north of the Wertz field.

Natrona County

General Petroleum 31-27-P...NW NE NW 27-35n-77w
Spudded.
Casper Creek Oil 1 State....SW SW NW 36-36n-81w
T.D. 2,386 ft., running 5⅞-in.
K. S. Albert 1 Young.....NE SE 25-32n-82w
S.D. 1,200 ft. in sand for heavier tools.

Niobrara County

Western Petroleum 1 Mosier, a wildcat on the Dakota high, southeast of Lance Creek, had a show of gas estimated at 500,000 to 1,000,000 cu. ft., in lower Morrison sand at 400-17 ft., and is straightreaming to bottom at 418 ft. Gas built up pressure of 50 lb. in 27 minutes and became stabilized at 100 lb. in 2 hours. Another show of gas was encountered at 220 ft.

Lance Creek had one completion, Argo 10 Ford, SE SE NW 33-36n-65w, which flowed 22 bbl. an hour natural from the Leo at 5,310-72 ft. It was still in sand when drilling stopped. It will be acidized.

Park County

Enalpac 3 Pauline O.P.C.-1, SW SE SE 5-51n-100w, Oregon Basin field, pumped 150 bbl. first 24 hours at 3,816 ft., total depth, from the Tensleep, top at 3,781 ft., after acidizing with 500 gal. It is an east offset to 2 Pauline, completed in 1928 for 300 bbl. at 3,328-3,745 ft.

Sublette County

Sunset Oil 1-X Government NE SE NE 10-29n-113w
Skidded rig from No. 1, hole lost at 248 ft., Big Piney district.
Klumpe Syndicate 1 State....NE SW NE 28-27n-113w
T.D. 1,792 ft., testing show of gas 1,512 ft.
Marvel Oil 1-L Government....SE SE SE 28-27n-113w
Drilling 1,137 ft.

Sweetwater County

Vermillion Oil-Johnson & Horton 1 Government....
SW NE NE 6-12n-99w
Drilling 480 ft.
Mountain Fuel Supply 2 Newburger.....
SW NW NW 18-12n-99w
Location.
Sinclair-Wyoming 101 Govt. NW NW NW 11-26n-90w
Drilling 700 ft.
Rocky Mt. Drlg. Co. 1 State..SW SW SW 36-20n-104w
Drilling below 5,850 ft. for Tensleep sand.
Sinclair-Wyoming 100-A.....NE NE NE 10-26n-90w
Drilling 2,030 ft.

MONTANA

Fallon County

Carter Oil 1 Northern Pacific Unit C SE SW 19-4n-62e
Drilling 1,200 ft., cemented 16-in. at 920 ft. with 750 sacks.
Mondakota Dev. 1 Seargents....SW SW SW 32-8n-60e
T.D. 910 ft., 4½-in. at 860 ft., preparing to test.

Flathead County

Haer-Jensen 1 Sheriff.....C NW NW 24-30n-21w
T.D. 200 ft., driving 12½-in. through gravel, first report.

Garfield County

California Co. 4 Charles.....C SE NW 21-15n-30e
Drilling 4,285 ft.

Glacier County

Cut Bank had three completions and two new operations.

Kulberg 2 Tribal-185, NW NW NW 19-32n-5w, swabbed 198 bbl. first 24 hours at 2,970 ft., total depth, from the Cut Bank sand at 2,905-65 ft. Main pay was at 2,950-65 ft. Oil rose 1,800 ft. in hole.

Glacier 3 Connolly, C SE SW 6-33n-5w, swabbed 17 bbl. in 24 hours at 2,875 ft., from the Cut Bank at 2,842-73 ft. Main pay was at 2,865-73 ft., oil rising 250 ft. in the hole.

Glacier Production 4 Lookhoff, SE SW SE 33-33n-5w, swabbed 189 bbl. in 12 hours at 2,892 ft., total depth. The Sunburst at 2,780-2,820 ft. had a show of oil. The Cut Bank was at 2,840-92 ft., with shale break at 2,851-56 ft. Main pay was 2,886-92 ft. The 7-in. was set at 63 ft. and 63 ft. of 5⅛-in. liner at 2,895 ft.

Hill County

Cobb-Yale 1 Government.....C SW NE 19-37n-15e
Drilling 3,300 ft.

Teton County

R. C. Tarrant 1 Kellogg.....SW NW NE 33-27n-5w
Drilling 1,950 ft.

Toole County

The only completion in Kevin-Sunburst was Montana-Dakota Utilities 317 Sauby, C NE NW 33-34n-1w, for 3,500,000 cu. ft. of gas in the Sunburst sand at 1,225-38 ft. The 7-in. is at 1,225 ft.

UTAH

Daggett County

Mountain Fuel Supply 1 Sparks..SW SW SE 23-3n-24e
Drilling 2,906 ft.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty 2 Pajarito.....NW NE 22-9n-1e
S.D. 2,775 ft. (correction).
David H. Boyd 1 Wright.....11-10n-5e
Cemented 10-in. at 148 ft.

McKinley County

Ambrosia Investors 1 Govt. ..SW NW NW 14-14n-10w
T.D. 1,005 ft., first Dakota 735-85 ft., small show oil, will set pipe, shoot, and test.

Sandoval County

Siemens & Boyd 1 Armijo, SE SW 1-12n-3w, Aqua Salodo grant, was unable to shut off water at 815 ft., and has abandoned hole.

San Juan County

Atlantic Refining Co. geological crews are again reported working in the San Juan basin and giving attention to the area just north of the New Mexico-Colorado line. Extensive geophysical work was done early last year and some options and leases were taken in the Blanco district. Some of the options were reported canceled last November, but others were retained.

Red Cactus Oil 1 Tribal, SE SE SE 35-29n-18w, had an artesian water well in the second Dakota at 1,640 ft., total depth, and has suspended drilling. Top of first Dakota was at 1,515 ft. Location is southeast of the Rattlesnake field.

Southern Union Production 4 Government.....
C NE SW 12-29n-12w

Moving in material, first report, Fulcher basin.

San Miguel County

Southwest Drlg. 1 Conchas.....NW NE 34-17n-21e
Drilling 2,730 ft., 6-in. liner set at 2,675 ft.

Torrance County

Orville J. Lee 1 Milburn.....C NW SW 36-7n-7e
Drilling 1,480 ft.

Sixteen Wells Authorized For More Than 10,000 Bbl.

By VICTOR LAURISTON

CHATHAM, Ont., May 24.—Crude production from Turner Valley limestone wells in April totaled 779,365 bbl., an average of 25,978 bbl. daily, exclusive of shallow crude and natural gasoline. The largest producer in April was Home Oil 2, with 25,735 bbl., Home Oil 1 being second with 19,569 bbl. and Alberta Oil Incomes 2 third with 19,195 bbl. Production covers 145 limestone crude wells.

Production for the week ended May 12, 1941, averaged 25,754 bbl. daily for Turner Valley with 846 bbl. daily of natural gasoline; and 68 bbl. daily from outside fields, making a total for all Alberta fields of 26,698 bbl. daily.

Total authorized production for Turner Valley for May has been set by the Alberta Conservation Board at 774,872 bbl., including 17,825 bbl. for wells to be completed, 3,410 bbl. estimated naphtha production and 620 bbl. from shallow wells. There are 16 wells authorized for 10,000 bbl. or more for the month, the largest being Alberta Oil Incomes 2, with 24,136 bbl.; Home Oil 1, with 22,289 bbl. and Home Oil 2 with 19,548 bbl.

Turner Valley Lime Tests

NORTH TURNER VALLEY.—Major Oil Investments 1, LSD 5, 34-20-3w5, has finished drilling at 7,590 ft., 1,184 ft. in the Madison lime, without reaching the lower porous zone. The lime showed a 60° dip, and it was decided to plug back and test the upper porous horizon, where good oil shows were met.

Foothills Oil & Gas 8, LSD 12, 27-20-3w5, finished at 8,273 ft., 678 ft. in the lime, has been given 446 bbl. daily allowable.

NORTH CENTRAL SECTOR.—Empress Royalties 1, LSD 5, 2-20-3w5, got the Madison limestone at 8,675 ft. and is deepening after cementing casing at 8,683 ft.

WEST CENTRAL SECTOR.—Regal Royalties 1, LSD 14, 24-19-3w5, bottoming in the Madison at 8,270 ft., is testing, with temporary allowable of 192 bbl. daily. Atlas Royalties 1, LSD 1, is below 7,855 ft. after getting the Madison at 7,588 ft.

Okalta Oil 10, LSD 12, 18-19-2w5, finished at 7,970 ft., is continuing tests, with temporary allowable of 138 bbl. daily.

Calmont-Northwest 3, LSD 4, finished at 8,060 ft., 488 ft. in the lime, has been given allowable of 398 bbl. daily.

Twin Valley Syndicate 2, LSD 10, 13-19-3w5, is below 8,221 ft., after getting the lime at 7,987 ft. Sun Ray Petroleum 1, LSD 8, got the dark lime at 8,256 ft. and finished drilling at 8,267 ft., 451 ft. in the Madison. It is acidizing and testing.

SOUTHWEST FIELD.—Northwest-Hudson's Bay 5, LSD 10, 8-18-2w5, finished at 8,487 ft., 431 ft. in the lime, has been completed with initial flow after acidizing of 776 bbl. daily.

Outside Tests

CLEARWATER.—Ram River Oils 2, 1-37-11w5 shut down in the Devonian limestone at 3,000 ft., has secured a heavier diamond-drill outfit from Paramount Oils, and will deepen. Some fair shows were secured in the upper Devonian. Clear Oils 1, LSD 8, 2-35-10w5, is in black shaly lime below 2,340 ft.

STEVEVILLE.—Standard of British Columbia 4 Princess, LSD 13, 12-20-12w4, finished drilling at 3,300 ft., 84 ft. in the Madison lime, with production string cemented at 3,240 ft., and is acidizing and testing. Standard 5, LSD 9, 14-20-12w4, is finishing below 3,300 ft., more than 85 ft. in the lime. Drill-stem tests of horizons above the lime in both wells failed to show commercial production. Standard 3, LSD 5, 13-20-12w4, has recemented for water intrusion. Standard 2, LSD 3, 13-20-12w4, has completed a long flow test which showed some water intrusion, and is recementing. Steveville Oils 1, LSD 5, 18-20-11w4, has discontinued drilling at contract depth of 4,000 ft. and cemented for production test. Anaconda-Patricia 1, LSD 9, 31-20-12w4, is deepening from 471 ft. after cementing 10-in. casing.

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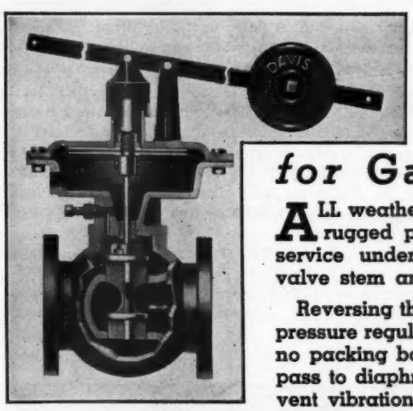

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Two Discoveries, Eight New Tests Mark Active Week

By R. MARNE SANFORD

DALLAS, Tex., May 26.—Almost equaling the activity started with the discovery of the Hawkins field the first of the year was the past week's record of one new discovery in Rusk County and possibly another in Anderson County, together with starting of eight new wildcat tests scattered in the East Central Texas basin. There were three new wildcats starting in Smith County and one each in Rusk, Van Zandt, Houston, Henderson and Angelina counties.

Probably centering the most of the attention during the week was the gaging of a previously indicated discovery well in Rusk County. It is the Ross Sears and A. O. Phillips 1 J. F. Pool, in the George May Survey, 6 miles southwest of the town of Henderson. Plug was set in casing on top of shows of oil in the Woodbine sand about a week ago and the well was at that time shut down for curing of titles on several tracts in the operators' block. Plug was drilled early the past week and the well made better showings than previously expected. It is bottomed at 4,126 ft. with cement drilled out to 4,082 ft. Casing was perforated from 4,051-62 ft. and the well started making 39-gravity oil with no water. Best gages thus far rate the flow at from 5 to 10 bbl. of oil hourly. Additional casing perforations are being planned since it is believed that excessive gas volume is retarding the oil flow. Gas was measured at 3,000,000 cu. ft. daily while flowing through ¼-in. choke. Shut-in pressure registered 1,400 lb. on casing and 1,140 lb. on tubing. The oil production is through 36 casing perforations.

With the completion of the well, operators plan to drill the second test 900 ft. west of the discovery on another part of the Pool tract. Erection of storage and a separator is expected to delay final gage until the first of the week.

Anderson Discovery Dubious

A wildcat test in Anderson County attracted considerable attention early last week when several sand sections showing oil were drilled. An electrical survey of the hole several days later showed the presence of salt water in each of the three sands. Casing had not been set in the hole at the close of the week. The wildcat is B.T. Royalties 1 S. F. Coleman, J. A. Box Survey, southeast of the Long Lake field and 5 miles northeast of Navarro Crossing. The Woodbine sand ws topped at 5,245 ft. with sands showing oil reportedly drilled from 5,245-60 ft., 5,288-5,319 ft., and 5,480-5,507 ft., total depth. Sands were reported to have shown oil with some distillate and to have carried gas. An electrical survey indicated salt water in all sections. Whether casing will be set for a test was not determined at the close of the week.

New Wildcat Operations

SMITH COUNTY.—The heavy lease play growing out of the Hawkins field discovery of several months ago has shown results in Smith County where three new wildcat locations were made last week. Materials were being moved in at the Marvin H. McMurrey, Tyler, 1 Guilden & Becker, on a 26-acre tract in the M. Culberson Survey, 1½ miles west of Mount Sylvan, announced as a deep Travis Peak operation to 8,000 ft. A 5,400-ft. failure was drilled a half mile to the west of the present site by R. W. Fair, Tyler, who also has an interest in the new test as well as some acreage in the block.

Contract has been let for a Woodbine sand test 5 miles north of Tyler to be drilled by Iowa-Payne Oil Co. on the Spring Lake Club lease. The location is 3,350 ft. from the west and 1,975 ft. from the north lines of the John Lane Survey. This test was first announced as a probable early June starter about 4 weeks ago.

The county's third operation is R. L. Pruitt and C. M. Pope, Jr., Tyler, 1 S. L. Cawthon, 467 ft. out of the southeast corner of a 50-acre tract in the Jacob Mast Survey, about 3 miles east of Bullard. The test was agreed upon several weeks ago in the consummation of a deal whereby the operators acquired a 4,500-acre block in the area.

RUSK COUNTY.—A 6,500-ft. wildcat for Rusk County is the R. T. Myers and G. W. Arrington test which is scheduled to start within 90 days. The operators are building a block out of the John Piburn, Thomas Jones, H. M. Smith and other surveys in the area which is about 9 miles east of New Salem and 4 miles south of Henderson.

VAN ZANDT COUNTY.—Jackson & Thompson have located their 1 Bruse, Jr., a Woodbine sand test in the B. Bruton Survey, 2½ miles northwest of Myrtle Springs. Derrick is erected and materials are being moved to the site.

ANGELINA COUNTY.—S. D. McDaniel has staked location for 1 Bonner, in the Sarah Odel Survey, as a shallow-sand test east of the town of Huntington. Materials are being moved to the site.

SUMMARY OF COMPLETIONS

East Texas Field

(1-hr. gages)

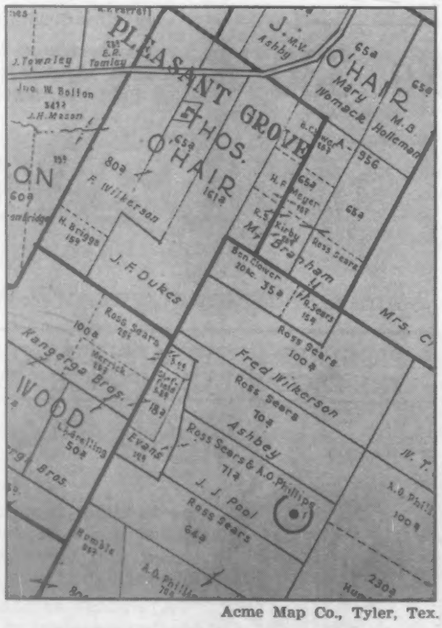
	No.	Bbl.	Footage
Oil: Longview area	3	130	10,829
Kilgore area	5	158	18,114
Total	8	.....	28,943

East Central Texas

(24-hr. gages)

Oil: Hawkins field	3	985	14,495
Other fields	3	1,555	12,614
Gas: Willow Springs fields	1	*56	7,400
Dry: Fields	1	.....	3,083
Wildcats	4	.....	17,748
Total	12	.....	55,340

*Million cu. ft. gas.



Acme Map Co., Tyler, Tex.

Newest Woodbine sand discovery in eastern Texas is the Ross Sears et al 1 Pool, 14 miles southwest of Henderson in Rusk County. The well is making from 5 to 10 bbl. of oil hourly from the Woodbine sand and is at present awaiting the erection of storage for final gage. The discovery operators have already staked an offset to the strike

EAST TEXAS FIELD COMPLETIONS

(1-hr. gages)

Gregg County

Longview area: Cox & Hamon 19 Rodden, 70 bbl., 3,599-3,625 ft.
F.H.E. Oil 4 Jones, 20 bbl., 3,645-49 ft.
T. W. Lee 13 Bumpas, 40 bbl., 3,529-55 ft.
Kilgore area: Shell 9 Carr, 47 bbl., 3,438-76 ft.
Shell 34 Willoughby, 50 bbl., 3,530-3,600 ft.
Tide Water 21 King, 26 bbl., 3,652-66 ft.

Rusk County

Kilgore area: Kirby Pet. 20 Jeff Reddic, 22 bbl., 3,596-3,702 ft.
Overton Refg. 2 Wade, 13 bbl., 3,650-70 ft. tion.

EAST CENTRAL TEXAS COMPLETIONS

(24-hr. gages)

Anderson County

East Long Lake: Tex-Harvey Oil 2 Cartmel, 405 bbl oil and 31 bbl. water, top sand 5,390 ft., perforated casing 5,407-11 ft., total depth 5,464 ft.

Cherokee County

Wildcat: American Liberty Oil 1 Austin, Z. Batton Sur., 3 mi. SW Irontown, dry at 4,748 ft.

Franklin County

Talco: Magnolia 6 Rutherford, 75 bbl. in 2¾ hr., open tubing, 4,232-67 ft.

Freestone County

Wildcat: Carter-Gragg Oil 1 Mims, J. M. Lyons Sur., 2½ mi. S Butler, top Woodbine 5,190 ft., top dry sand 5,247 ft., dry at 5,295 ft.

Gregg County

Willow Springs: Union Prod. 1 Hays, 56,000,000 cu. ft. gas, 8 bbl. distillate per million cu. ft., perf. casing 7,317-62 ft., total depth 7,400 ft.

Henderson County

Flag Lake: Hunt & McMillian 1-A Dillard, abandoned location.
Texas Co. 4 Nolan, top Pecan gap 1,370 ft., Austin 2,015 ft., Woodbine 3,014 ft., dry at 3,083 ft.

Limestone County

Wildcat: John Menke 1 Hammond, J. Folk Sur., 1½ miles NW Kossie, dry at 5,955 ft.

Van Zandt County

Van: P. Calvert 4 Carter, 59 bbl. in 3 hr., 2,855-83 ft.

Wood County

Hawkins: Humble 1 Dagnell, (old well reworked), 185,000,000 cu. ft. gas from sub-Clarksville sand from 4,057-73 ft. after squeezing off perforations in lower Woodbine sand.
Humble 1 Surratt, 241 bbl. in 18 hr., ¼-in. choke, top Woodbine 4,606 ft., oil sand 4,740 ft., T.D. 4,819 ft., perforated casing 4,797-4,809 ft.
Humble 1 Smith, 311 bbl. in 18 hr., ¼-in. choke, top Woodbine 4,576 ft., oil sand 4,702 ft., total depth 4,837 ft.
B. B. Orr 1 Smith, 127 bbl. in 6 hr., ¼-in. choke, top Woodbine 4,387 ft., no sand top reported, T.D. 4,840 ft.
Wildcat: B. Urbanic 1 Snyder, S. Castleberry Sur., 2½ mi. E of Hawkins field, abandoned at 1,750 ft.

EASTERN TEXAS WILDCAT REPORT

Anderson County

Griffith Bros. 1 Clayton, William Frost Sur., Elkhart area, S.D. 6,047 ft.
R. H. & W. Oil 1 Saunders, 17-acre tract in Joseph Ferguson Sur., in Frankston townsite, top sub-Clarksville 4,874-4,910 ft., S.D. 5,225 ft.
Huddleston & Prater 1 Praff, R. Allen Sur., 5 mi. NW Palestine, S.D. 1,530 ft.
B. T. Royalties 1 Coleman, NW cor. Coleman tract in J. A. Box Sur. 10, top Woodbine 5,245 ft., T.D. 5,507 ft. with show oil, electrical sur. showed water, S.D.

Angelina County

S. D. McDaniel 1 Bonner, Sarah Odel Sur., first report.

Camp County

Lucey 1 McKenzie, L. William Sur., ¾ mi. W of Pittsburg field, drilling 4,792 ft.

Cherokee County

Bobby Manziel 1 Nagel, T. Timmons Sur., 3½ mi. NW Mount Selman, derrick.

Falls County

Kelsey & Miller 1 Reed, A. de la Serda Sur., 3 mi. NE Marlin, top Georgetown lime 1,812 ft., S.D. 2,203 ft.

Fannin County

H. W. English 1 Parkhurst, M. P. Davis Sur., 7 mi. W of Leonard, derrick.
Damon Oil 1 Chaffin, A. C. Ketchum Sur., 4 mi. NE Bonham, S.D. 95 ft.

Freestone County

Westbrook & Whistler 1 Coleman, H. Howard Sur., 2½ mi. SW Streetman, location.

Henderson County

British American Oil 1 Young, Joseph Rice Sur., 7½ mi. SW of Athens, first report.

Houston County

G. C. Dixon 1 Texas Long Leaf Lbr. Co., J. Chears Sur., 5 mi. W of Lovelady, S.D. 1,460 ft.
O. W. Killam 1 Houston County Coal Co., C. M. Goolsby Sur., 2 mi. N of Lovelady, first report.

Red River County

Albert Wooley 1 Nelson, J. Bowerman Sur., 3 mi. S Allen Mill, top Woodbine 400 ft., Georgetown lime 710 ft., drilling 1,014 ft.

Robertson County

C. C. Baker & Son 1 Middleton, J. S. McNeil Sur., 2 mi. S of Elliott, S.D. 20 ft.

(Continued on Page 83)

MICHIGAN OPERATIONS

Deep Test in Bay County Is Halted Again at 7,790-ft.

By OTTO C. PRESSPRICH

SAGINAW, Mich., May 26.—Despite successful completions in the Winterfield-Clare oil pool most of the 20 completions during the week in a dozen Michigan counties were dry holes.

Production of crude appears to be stabilizing temporarily at around 37,000 bbl. a day, the Oil and Gas Association of Michigan indicated in its monthly production compilation. April output was approximately 1,110,000 bbl. on a daily average basis of 37,002 bbl. from 3,037 wells classed as producers. Production was 48,000 bbl. less than the March figure when 3,028 wells averaged 37,373 bbl. daily.

The Freeman-Redding area in Clare County, remaining the principal producing area, showed the sharpest drop, of around 400 bbl. a day, thus offsetting moderate gains in totals from 17 other districts. Adams-Arenac field had the best per well record, its 30 producers averaging nearly 120 bbl. a day. Adams production was up slightly while other main centers of production, Midland's Porter-Yost, Allegan, Van Buren, and Kent-Ottawa, remained nearly stationary.

The industry's interest was shifting again to the state's deepest oil test, Gulf 1 Bateson in Bay County, drilling now below the 7,776-ft. depth at which fire and an explosion halted expensive activities last winter. Penetration of a

(Continued on Next Page)

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells:			
Allegan County	3	92	4,327
Bay County	1	57	1,518
Clare County	2	404	7,553
Dry holes:			
Allegan County	5	.....	7,288
Gratiot County	1	.....	995
Huron County	1	.....	1,000
Kent County	1	.....	2,282
Monroe County	1	.....	2,130
Montcalm County	1	.....	3,213
Osceola County	2	.....	2,365
Ottawa County	1	.....	1,702
Van Buren County	1	.....	1,192
Total	20	.....	35,565

MISSISSIPPI AND SOUTHEAST

Closer Spacing at Tinsley Keeps Drilling Activity Up

By GEORGE WEBER

JACKSON, Miss., May 26.—A total of 22 new locations were granted in the Tinsley field last week primarily as a result of abandonment of the 40-acre spacing pattern heretofore enforced in the field. Of the 22 new locations, 12 were granted to wells which will be drilled on tracts of less than 40 acres, or will be drilled off center of 40-acre tracts. Permits for two other similar locations were opposed by offsetting operators, and will be decided upon this week, after a hearing. At another hearing on June 5 additional requests for special permits will be heard by the Mississippi Oil and Gas Board.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Oil wells: Fields	3	2,027	14,231

This move by the state, unless voluntarily reversed in view of the federal request for wider spacing to conserve steel for pipe lines, will result in a marked increase in Tinsley drilling which might otherwise have declined with the recent definition of the Woodruff sand production on the south. Fourteen rigs are active in the field at the present time, and the new permits mark first participation in the field's operations of five operators.

Tinsley production remained about the same as the preceding week, but may be increased in view of completion of a local refinery and prospective outlets to other refineries to the north in Tennessee, Minnesota, Missouri and other points.

In the extreme north of the state, in Marshall County near the Tennessee line, Hilton Phillips staked 1 Withers, a cable-tool test scheduled to go to 3,500 ft. One other test is beginning in this county and a third is shut down at 1,130 ft. Across the state line in Shelby County, Tennessee, Lion Oil Refining Co. is drilling below 2,845 ft. in 1 Bateman, having entered the Paleozoic after missing the Eutaw and Tuscaloosa formations.

Current interest in Mississippi leasing is centered in the southwest section of the state, particularly in Copiah County. Other counties included in the play are Claiborne, Jefferson, Franklin and Lincoln. A wildcat is reported scheduled early in June for Lawrence County just east of the above mentioned active leasing area.

Alabama

The deep Union Producing Co. 1 Waite is the center of Alabama interest, as H. I. Morgan moves a heavy dual drawworks rig on location for the deep Hatchitigbee anticline wildcat. In all probability, however, it will be drilled "tight," with only depth information released during its drilling.

In Georgia and Florida, the increase in activity is reflected in the establishment of two scouting offices at Tampa, Fla., and Waycross, Ga., by the Sun Oil Co., and the reported transfer of a full-time scout to Tampa by Humble Oil & Refining Co. The lease play in Florida centers around the south edge of the vast Okefenokee Swamp, in Baker, Columbia and Hamilton counties.

A tentative location has been staked by McSpadden et al in Lot 328, Sixth Land district, about 6 miles northeast of Douglas, Ga.

MISSISSIPPI COMPLETIONS

Tinsley—Yazoo County

Union 2 Nannie Berry, NW SE 25-10-3, 707 bbl., T.P. 45 lb., C.P. 20 lb., T.D. 5,025 ft., 7-in. 5,022 ft., Woodruff sand perf. 4,950-74 ft.

Union 4 Nannie Berry, NE SW 25-10-3, 800 bbl., C.P. 100 lb., T.P. 40 lb., T.D. 4,640 ft., 7-in. 4,636 ft., Woodruff sand 4,573-4,607 ft.

Union 1-B Sallie Perry, SE NE 23-10-3, pumped 520 bbl., T.D. 4,594 ft., 7-in. 4,566 ft., Woodruff sand 4,567-77 ft.

MISSISSIPPI WILDCATS

Chickasaw County

Century 1-A Flaherty, S½ SW SW 8-13s-3e, drilling past fish 2,000 ft.

Copiah County

Ze Nae 1 W. W. Broom, SW SW SW 1-9n-8e, old well drilled deeper from 3,628 ft., cleaned out to 2,500 ft., S.D.

Grenada County

H. T. Salter et al 1 Carpenter, NE SE 6-21n-7e, rig.

Grenada 1 Connecticut General, NW SE 28-23-5, S.D. 3,210 ft., repairs.

Leake County

Sinclair-Wyoming 1 Pearl River, NW SE NW 28-9n-6e, drilling shale 3,345 ft.

Marshall County

Hilton Phillips est. 1 Withers, SW SW 17-3s-4w, first report.

Montgomery County

Henderson 1 School Land, SE NE NW 16-19n-6e, drilling 2,325 ft.

Sharkey County

British American 1-A Houston, NW NE SW 23-11-7w, bailed est. 25 bbl. live oil in pits, 7⅝-in. 3,278 ft., perf. lower part and squeezed, testing.

Warren County

Waggoner 1 Parker, NW NW 17-14n-1e, T.D. 7,013 ft., preparing to deepen, cleaning out at 3,500 ft.

Yazoo County

Sinclair-Wyoming 1 Swayze, W½ E½ W½ 23-12n-1e, drilling 5,835 ft.

ALABAMA DRILLING REPORT

Clarke County

Union 1 M. M. Waite, C NW 27-8n-1w, rig.

Limestone County

Shaw 1 E. E. Carter, SE SW 35-2s-5w, drilling 595 ft.

Madison County

W. W. Newman 3 B. Nichols, SE NW NE 2-6s-2e, drilling 93 ft.

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LOS ANGELES HOUSTON NEW YORK CITY

Kansas Fields

(Continued from Page 61)

SE NW 15-24-11w, flowed 107 bbl. 2 hr., potential 2,865 bbl., Viola 3,807-15 ft., T.D.

WILDCATS DRILLING

12-4-14e, S½ SE NW ..... Bumpus 1 Achten Sand 2,287-99 ft., show gas, 6-in. 2,300 ft., drilling 2,350 ft., Nemaha County.
6-4-17w, S½ SE SE ..... Helmerich & Payne 1 Lloyd First report, Phillips County.
29-15-8w, SW SW ..... Ingling & Parker 1-A State Drilling 1,874 ft., Ellsworth County.
25-15-12w, NW NW NW ..... Central 1 Waydziak Anhydrite 750 ft., drilling 1,905 ft., Russell County.
5-16-1w, N½ SW SE ..... Stanolind 1 Karber Lansing 2,040 ft., Mississippi lime 2,668 ft., cored show oil 2,670-77 ft., D.S. test 2,670-77 ft., no show, cored porous saturated limestone 2,766-87 ft., cored porous saturation 2,682-83 ft., D.S. test 2,685-2,690 ft., no show, cored porous saturation 2,690-97 ft., Saline County.
23-22-38w, E½ SE SE ..... Stanolind 1 Patterson First report, Kearney County.
18-27-13w, W½ SW SW ..... Aladdin 1 Reschke Base Kansas City 4,223 ft., Mississippi lime 4,335 ft., Cherty Viola 4,383 ft., cored chert, slight porosity, 4,338-41 ft., Simpson 4,496 ft., Arbuckle 4,572 ft., to core at 4,573 ft., Pratt County.
12-28-11e, SE SW SW ..... Barker 1-A Dove Show oil in Kansas City 1,095-99 ft., drilling 1,267 ft., Greenwood County.
24-28-11e, SE SW NW .... McPherson 1-A Batesman Show oil 1,106-11 ft., 5 bbl. water 1,115 ft., show gas 1,142 ft., drilling 1,147 ft., Elk County.
36-32-3e, NE NE NE ..... Shell 1 Hall Mississippi lime 3,257 ft., Kinderhook 3,420 ft., fishing 3,489 ft., Cowley County.
17-33-6e, W½ SW NW ..... Miller 1 Tonkinson First report, Cowley County.
20-34-7e, NE NE SE ..... Marylyn 1 Mosier First report, Cowley County.
35-34-11w, S½ SE SW .. Pryor & Lockhart 1 Ishmael Pulled in rig 4,065 ft., Barber County.

NEBRASKA, MISSOURI

ST. JOSEPH, Mo., May 25.—The Ohio Oil Co. has brought in the third well on its Bahr lease in the Falls City pool. The 3 Bahr filled naturally 400 ft. and acidization was started at once. Meanwhile the 1 Sibbernsen, owned jointly with Harry Harper, had oil showings in the Silurian, accompanied by water, and was slowly approaching the Viola lime for a test of that formation. A Viola strike is needed to revive operations in the pool, it generally is conceded.

The Shubert pool of Richardson County had one new well and probably another. The Black Gold Operating Co. found pay in 1 Watkins A and cemented pipe in 1 Watkins B. The company is beginning work on two other tests in the pool.

Missouri's only good news for the week was a gas well in Platte County, in the pool opened about 2 years ago northeast of Parkville. Kansas had two new gas wells in Leavenworth County, both drilled by McLaughlin Sons, Inc.

MISSOURI COMPLETIONS

Jackson & Rust 1 Hays .....C NE NE 22-66n-42w Dry, Hunton 2,092 ft., St. Peter 3,199-3,235 ft., Arbuckle 3,236 ft., T.D. 3,289 ft., Atchison County.
Missouri Valley Gas & Oil 2 Long .. NW SE 7-51n-33w T.D. 540 ft., 3,714,000 cu. ft. gas, Platte County.
Robert Wells & Son 1 Withers, SW SW SE 28-55-28w, dry, T.D. 420 ft., Caldwell County.

NEBRASKA COMPLETIONS

Falls City, Richardson County: Ohio 2 Bahr, SW SW SE 7-1-16, pumped 432 bbl., Hunton 2,266 ft., T.D. 2,273 ft.
Ohio 2 Bucholz, C NW NW 17-1-16, dry, T.D. 2,940 ft., temporarily abandoned, Lansing 766 ft., Mississippi 1,938 ft., Hunton 2,300 ft., Viola 2,925 ft.
Ohio 5 Bucholz, NW SE SW 17-1-16, abandoned, pits.
Ohio 1 Sibbernsen, CSL SW 17-1-16, abandoned, cellar.
Wildcat, Otoe County: Zimmer et al 1 Patrick Roddy, C S½ SE SW 31-9-14, dry, T.D. 2,500 ft., Lansing 827 ft., Mississippi 1,050 ft., Hunton 1,608 ft., Simpson 2,320 ft., St. Peter 2,395 ft., Arbuckle 2,484 ft.
Wildcat, Sarpy County: Houghton et al 1 Timm, C S½ SW SE 15-13-12, dry, T.D. 425 ft., Mississippi 235 ft., Kinderhook 312 ft.

NEBRASKA DRILLING REPORT

Ebke 1 Mathies ..... NE NE NE 22-5n-1w 5-in. 3,300 ft., S.D. 3,831 ft., Fillmore County.
Helmerich & Payne 1 Leising ..... C SE 14-3n-23w Drilling 2,050 ft., Furnas County.
National 1 Oswald ..... NW SW 15-2n-14e T.D. 2,912 ft., P.B. 2,623 ft., filled up 12 bbl. oil and 15 bbl. water, Richardson County.
Rider 1 Warren ..... NE NE 21-3n-5e Electrical log show gas 1,885 ft., Hunton 1,930 ft., show gas 2,000-20 ft., some saturation 2,535-40 ft., Viola 2,565 ft., some saturation 2,605-30 ft., Decorah 2,680 ft., St. Peter 2,753 ft., pre-Cambrian 2,820 ft., T.D. 2,858 ft., will set casing about 2,675 ft., Gage County.

Appalachian Fields

(Continued from Page 68)

sand 5,175 ft., with a gage of 504,000 cu. ft. of gas while drilling in the sand and a volume of 1,614,000 cu. ft. after shot. This again extends the possibilities of the Elk-Poca Oriskany field and the intervening acreage will be drilled.

In Monongalia County the Hope Natural Gas Co. wildcat on the H. C. Greer farm in Morgan district is shut down at 3,164 ft. where 8¼-in. casing was set in a lime shell. There was a small showing of gas at 2,875 ft. In Freemans Creek district, Lewis County, this company is clearing location for the test on the Albert Woofter farm which will be drilled with a rotary.

Boone County

Scott district: Owens, Libby-Owens 31 Allen & Pryor, 83,000 cu. ft. gas; Big lime, 1,191-1,381 ft.; Big Injun, 1,381-1,419 ft.; Berea, 1,874-92 ft.; gas, 1,882 ft.; T.D. 1,918 ft.

Braxton County

Otter district: J. D. Young et al 1 J. L. Lloyd, dry, through Injun sand, T.D. 2,122 ft.

Calhoun County

Sherman district: South Penn 6 J. S. Sharps, 2 bbl., Injun sand, T.D. 2,244 ft.
South Penn 6 Henry Brannon, 75,000 cu. ft. gas, Injun sand, T.D. 2,262 ft.
Creed Yoak et al 3 Edith McDonald, 8 bbl., Injun sand, T.D. 2,198 ft.

Clay County

Henry district: Virginian Gasoline & Oil Co. V-1292 Brown, Swann & Goshorn, 2 bbl., Injun sand, T.D. 1,842 ft.

Hancock County

Grant district: R. J. Braden & Co. 62 C. E. Brenneman, 2 bbl., Berea, T.D. 869 ft.

Lincoln County

Union district: Russell Gas Co. 3 Martha A. Stump, drilled deeper; brown shale, 3,295-3,648 ft.; gas, 3,270-3,510 ft.; shot 2,896-3,652 ft. with 5,000 lb. gelatin, gage 92,000 cu. ft. gas, T.D. 3,652 ft.

Washington district: Harvard Gas Co. 8 Lincoln Mineral & Land Co., 1,150,000 cu. ft. gas; Big lime, 1,349-1,551 ft.; Big Injun, 1,551-96 ft.; Berea, 2,027-47 ft.; Slate, 2,047-3,230 ft.; brown shale, 3,480-3,671 ft.; shot 2,578-3,679 ft.; T.D. 3,679 ft.

Ritchie County

Murphy district: George L. Ballentine 2 G. S. Tibbs, 225,000 cu. ft. gas.; Big Injun sand, T.D. 1,901 ft.

Upshur County

Banks district: Cumberland and Allegheny Gas Co. 305 P. S. Lewis, 425,000 cu. ft. gas; Squaw sand, 1,383-1,602 ft.; gas, 1,587-1,602 ft.; T.D. 1,602 ft.

Wayne County

Lincoln district: Owens, Libby-Owens 2 Koonce & Zimmerman, 172,000 cu. ft. gas; Big lime, 987-1,171 ft.; Big Injun, 1,171-1,284 ft.; Berea, 1,748-78 ft.; brown shale, 2,308-2,588 ft.; shot 2,164-2,580 ft. with 4,000 lb. dentonite; T.D. 2,879 ft. in Corniferous lime topped at 2,857 ft.

ORISKANY GAS FIELDS

Kanawha County

Poca district: Spartan Gas Co. 2 S. L. Clendenin, 3,800,000 cu. ft. gas after shot; Corniferous lime, 4,863 ft.; Oriskany, 4,966 ft.; T.D. 5,000 ft.
Godfrey L. Cabot ,Inc. 1 Edna V. Bailey, Big lime 1,694 ft. with gas gaging 2,000,000 cu. ft. turned into lines at 1,697 ft.
Columbian Carbon Co. 2 Homer C. Jones, Big lime 1,530 ft. with gas gaging 4,842,000 cu. ft. turned into lines at 1,600 ft.

Jackson County

Washington district: United Fuel Gas Co. 5005 M. A. Bumgardner, 8,560,000 cu. ft. gas; Salt sand, 1,534-38; Big lime, 1,540-1,705 ft.; Big Injun, 1,705-52 ft.; Berea, 2,456-2,500 ft.; Corniferous lime, 4,788-4,903 ft.; Oriskany, 4,903-25 ft., T.D. 4,925 ft.

Permian Basin

(Continued from Page 71)

4 weeks is 101 and since the start of the year, which has seen more new field work than any year since the early days of the field, there have been 363 locations made in the field.

PANHANDLE COMPLETIONS

Gray County

Cities Service 21 Hughey B, 66 bbl., natural, 3,194-3,262 ft.
Gulf 5 Worley, 202 bbl., 460-qt. shot, 2,955-3,077 ft.
King Oil 10 Simpson, 187 bbl., 120-qt. shot, 3,215-67 ft.
Ryan Consolidated Oil 2 Barrett B, 41 bbl., 180-qt. shot, 3,270-3,302 ft.
Stanolind 13 Waggoner, 220 bbl., 390-qt. shot, 3,175-3,305 ft.
Texas 10 Chapman A, 103 bbl., 100-qt. shot, 2,810-67 ft.
Tripplehorn 7 Webb, 40 bbl., 440-qt. shot, 2,470-93 ft.

Hutchinson County

Shell 21 Harvey B, 303 bbl., 165-qt. shot, 3,017-77 ft.

Moore County

Texoma Natural Gas 1-P Beauchamp, 7,000,000 cu. ft. gas, 2,795-3,363 ft.

Wheeler County

Charlotte Oil 2 Mitchell, 119 bbl., natural, 2,042-60 ft.
Williams 6 Bentley, 122 bbl., natural, 2,408-35 ft.

SOUTHEAST NEW MEXICO COMPLETIONS

Lea County

Corbin: Helmerich & Payne 3-A Corbin, SE NW 10-8s-33e, 3,000,000 cu. ft. gas, T.D. 4,327 ft.

Eddy County

Barber: Wills et al 1-B State, NE SW 20-20s-30e, 3 bbl. oil an hour, T.D. 1,548 ft.
Red Lake: Hughes 4 Brooks, SW NW 19-17s-28e, 60 bbl. a day, T.D. 554 ft.

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Michigan Fields

(Continued from Preceding Page)

porous formation at 7,790 ft. temporarily halted activity still in the Salina. Meanwhile, United Drillers & Producers 2 Kircher in Section 3, Monitor Township, in shallow Berea sand was listed as a completion rating 57 bbl. a day after nitro treatment and Chapman Oil Co. 1 Schultz, Section 2, showed several hundred feet of oil in hole and was receiving nitro treatment. Depth of the Schultz well is 1,520 ft. The 2 Kircher was completed at 1,518 ft.

WINTERFIELD.—Production after acid was estimated at 300 bbl. a day from Pure 2 Swindlehurst in Section 32, while Cities Service Oil Co. completed 1 Phares in the same section for after-acid yield of 104 bbl. a day. Two other Clare County wildcats neared completion, Gulf Refining Co. reporting A-1 Frackelton, Lincoln Township, Section 20, reaching Dundee objective while Union Drilling & Producing 1 O'Brien, Summerfield, Section 5, was nearing that formation. American Drilling Co. was testing 1 Spring and X-3 State, both in Dundee, in Redding. Commercial wells were indicated.

SOUTHWEST.—Completions continued high in Allegan County, with few successes. Two Trowbridge and one Salem tests were producers, but five others were dry. Other dry holes were reported in Columbia-Van Buren, Blendon-Ottawa, Algoma-Kent.

MICHIGAN COMPLETIONS

Allegan County

Casco Township: M. Bliss Keeler 1 Lull, NE SE SW 36-1n-16w, dry, T.D. 1,170 ft.
Martin Township: Bridger Basin Oil Co. 1 Pollitt, SW SE SW 6-2n-11w, dry, T.D. 1,717 ft.
Overisel Township: Charles W. Cook 1 Boers, SE SW NW 6-4n-14w, dry, T.D. 1,557 ft.
H. C. Nelson 6 Peters, NW NE SE Sec. 8, dry, T.D. 1,499 ft.
Salem Township: Socony Vacuum Oil Co. 1 Thomas, SW SW SE 11-4n-13w, 32 bbl., acid, T.D. 1,596 ft.
Trowbridge Township: J. E. Flanigan 3 Clair, NW SE SE 29-1n-13w, 20 bbl., natural, T.D. 1,362 ft.
L. C. Sleep 1 Bridgman, SW SW NW 29-1n-13w, 40 bbl., acid, T.D. 1,369 ft.
Valley Township: Miller Bros. 1 Schwab, NW SW SE 33-2n-14w, dry, T.D. 1,345 ft.

Bay County

Monitor Township: United Drillers & Producers 2 Kircher, NW NE NE 3-14n-4e, 57 bbl., nitro shot, T.D. 1,518 ft.

Clare County

Winterfield Township: Cities Service Oil Co. 1 Phares, W½ NW NE 32-20n-6w, 104 bbl., acid, T.D. 3,781 ft.
Pure Oil Co. 2 Swindlehurst, W½ NE NW 32-20n-6w, 300 bbl., est., acid, T.D. 3,772 ft.

Gratiot County

New Haven Township: W. E. Ross 1 Lickenson, S½ SE 6-10n-4w, dry, T.D. 995 ft.

Huron County

Bloomfield Township: W. E. Furnell 1 Ingram, NW SE NW 10-17n-14w, dry, T.D. 1,000 ft.

Kent County

Algoma Township: E. R. Roach 1 Holden, NE SE NE 28-9n-11w, dry, T.D. 2,282 ft.

Monroe County

Dundee Township: H. L. McEvoy 1 Delaney, NW SW SE 30-6s-6e, dry, T.D. 2,130 ft.

Montcalm County

Crystal Township: Socony-Vacuum Oil Co. 1 Snearey, E½ SE SE 14-10n-5w, dry, T.D. 3,213 ft.

Osceola County

Lincoln Township: Taggart Bros. Co. 20 Blanding, C SE 29-18n-10w, dry, T.D. 1,157 ft.
Taggart Bros. 19 Reber, C NE 32-18n-10w, dry, T.D. 1,208 ft.

Ottawa County

Blendon Township: Muskegon Oil Corp. 1 Zeeland Bank, NE NW NE 31-6n-14w, dry, T.D. 1,702 ft.

Van Buren County

Columbia Township: Clapsaddle & Harris 1 Miles, SW NW SW 24-1s-15w, dry, T.D. 1,192 ft.

Operations Gain at Carrizo as Second Producer Shows

By F. L. SINGLETON

CORPUS CHRISTI, Tex., May 26.—Operators interested in the Balcones fault-line district were watching the progress of Producers Corp. of Nevada 2 S. E. McKnight which looms as the second producer for the new Carrizo field, Dimmit County. Saturated sand was cored at 2,286-90 ft., and on a drill-stem test at 2,286-90 ft. the well tested 5 lb. working pressure and recovered 100 ft. of pipe-line oil on a ¼-in. choke. Shale was cored at 2,290-2,300 ft., and the well is drilling ahead below 2,400 ft. in search of a second sand which was recently cored in an outpost well. The 2,200-ft. sand is the same as the discovery well, but only 5 ft. was cored. The well is located in the G.W.T.&P.R.R. Survey No. 653, about 933 ft. southwest of the discovery well. The discovery of this field opened the first production for the county and resulted in a large-scale leasing program. However, interest has been at a low ebb in view of three recent abandonments in the county, two of which were in the field proper.

SUMMARY OF COMPLETIONS

	No.	Bbl.	Footage
Lower Gulf Coast District			
Oil wells: Stratton	3	335	19,864
Other fields	8	1,100	44,276
Gas wells: Fields	1	.....	6,593
Dry holes: Fields	1	.....	2,715
Total	13	.....	73,448
Laredo District			
Oil wells: Fields	9	1,050	27,528
Gas wells: Fields	2	.....	4,880
Dry holes: Fields	3	.....	7,638
Wildcats	2	.....	7,132
Total	16	.....	47,178
San Antonio District			
Oil wells: Fields	2	3	856
Gas wells: Wildcats	1	.....	1,366
Dry holes: Fields	2	.....	4,341
Wildcats	2	.....	2,487
Total	7	.....	9,050

This area gained an important operation as Humble Oil & Refining Co. began moving its rig from Dimmit County to Zavala County where location for a 6,500-ft. test has been made in Section 12 of the Cross Ranch subdivision, about 1 mile north of the town of Del Monte. South of Carrizo Springs, Dimmit County, Roy Mogford 1 Dr. Bernard in the J. Blair Survey is drilling below 670 ft. Outside of the development in the Carrizo field, this is the only active wildcat in the county.

Corpus Christi Area

In the Corpus Christi area, and located in San Antonio Bay, offshore from Calhoun County, Gulfboard 117-State has been completed for an estimated initial production of 34,000,000 cu. ft. of gas daily flowing through open 2½-in. tubing. This well was drilled to a total depth of 6,406 ft., and was plugged back and completed in sand topped at 2,880 ft. Gas from the well is being used as fuel in drilling the company's 114-State, northwest of the gasser. The field has been named "Steamboat Pass."

JIM WELLS COUNTY.—In Jim Wells County, Rowan & Hope 1 Kynette, 1½ miles southeast of the Ben Bolt field was being watched with interest as it prepares to core below 4,350 ft. A 10-minute drill-stem test at 3,989-96 ft. tested no working pressure and recovered 20 ft. of oily mud. In the Seelig area, Magnolia 1 unit 3 Seeligson, S.K.&K. Survey, is coring in sandy shale below 5,098 ft. following a 15-minute drill-stem test at 5,035-48 ft., which tested 25 ft. of mud with no show of oil or gas.

MIDWAY FIELD.—Gas-distillate production from a new sand in the Midway field, San Patricio County, was apparently assured by the showing of British American 3 Ivey which tested 53-gravity distillate and 900 lb. working pressure on a 12-minute drill-stem test at 6,043-53 ft. The sand section is approximately 800 ft. deeper than the regular 5,200-ft. sand.

An outpost for the field is being started by Stanolind Oil & Gas Co. which is preparing to spud 2-B Corpus Christi Bank & Trust Co., about 1½ mile northwest of Midway in the S.A.&M.G. Survey. West of Midway about 2 miles, F. W. Boykin staked location for 1 A. M. Scrivner in the S.A.&M.G. Survey No. 5. The well is about 5,500 ft. northwest of British American 1 Coggin and is being drilled on a farmout lease from Sun Oil Co.

Laredo District

A new gas field was marked up for the Laredo district with the completion of Adams, Luckey & Neuhaus 2 D. O. Gallagher which flowed at the estimated rate of 600,000 cu. ft. of gas with an odor of distillate per day through a 5/32-in. choke. Tubing and casing pressure was 975 lb. Production is from perforated casing at 2,855-63 ft. The well is located in Block 282, about 3½ miles southwest of Randado.

STARR COUNTY.—In Starr County, T. B. Hoffer et al 1 Guerra which the previous week showed promise of production has been abandoned at a depth of 3,739 ft., after a production test at 3,645-39 ft., recovered 270 ft. of drilling mud. The well is located on a block of about 4,000 acres southeast of the Guerra field. In view of the showing, additional development is expected to be started on the block.

SOUTHWEST TEXAS COMPLETIONS

LOWER GULF COAST DISTRICT

Jim Wells County

Ben Bolt: Bridwell 2-C Hoffman, 296 bbl., ⅞-in. choke, perf. casing 5,194-97 ft., T.D. 5,205 ft.
Bridwell 3-C Hoffman, 285 bbl., ⅞-in. choke, perf. casing 5,127-23 ft., T.D. 5,232 ft.

Nueces County

Agua Dulce: Taft Oil Co. 1 Hugo, gas well, T.D. 6,593 ft.
Clara Driscoll: E. A. Graham 1-B Gandy, 85 bbl., 7/64-in. choke, perf. casing 5,432-42 ft., T.D. 6,010 ft.
Richard King: Southern Mineral 20-B King, 87 bbl., 7/64-in. choke, perf. casing 4,645½-49 ft., T.D. 5,650 ft.
Southern Mineral 9 Walker, 84 bbl., 7/64-in. choke, perf. casing 5,644-49 ft., T.D. 5,650 ft.
Stratton: Bay-Tex 18 Union Central, 162 bbl., ⅛-in. choke, perf. casing 6,568-75 ft., T.D. 6,668 ft.
Southern Minerals 15 Stratton Community, 76 bbl., 5/32-in. choke, perf. casing 6,560-68 ft., T.D. 6,569 ft.
Southern Mineral 16 Stratton Community, 97 bbl., 7/64-in. choke, perf. casing 6,590-98 ft., T.D. 6,627 ft.

San Patricio County

East White Point: Houston Oil Co. 13 Baldwin, 167 bbl., ⅛-in. choke, perf. casing 5,645-53 ft., T.D. 5,711 ft.
Midway: Stanolind 2 Ivey, 83 bbl., ⅞-in. choke, perf. casing 5,296-5,305 ft., T.D. 5,333 ft.

Victoria County

Coleto Creek: Averill & Cox, well blew out and cratered, abandoned, T.D. 2,715 ft.
Heyser: Gulf 54-B Traylor, 13 bbl., ⅛-in. choke, sand 5,478-85 ft., T.D.

LAREDO DISTRICT

Duval County

Hoffman: Magnolia 23 Weil, gas well, T.D. 2,733 ft.
Kreis: Bridwell 1-B Escapule, 148 bbl., ¼-in. choke, sand 3,198-3,212 ft.

Hidalgo County

Sam Fordyce: Phillips 4 Saenz, 129 bbl., ⅛-in. choke, perf. casing 4,128-34 ft., T.D. 4,185 ft.

Jim Hogg County

Colorado: Humble 14-B King, 188 bbl., ⅞-in. choke, T.D. 2,900 ft.
Wildcat: W. G. French 1 Pena, dry, T.D. 3,227 ft.

Live Oak County

White Creek: Henderson Coquat 3 Goad, 35 bbl., pumping, perf. casing 1,522-30 ft., T.D. 1,540 ft.
P. H. Korges 3 Loughridge, dry, T.D. 1,490 ft.

Starr County

Rincon: Continental 35-A Slick, dry, T.D. 4,934 ft.
Continental 47-B Slick, 217 bbl. oil and 3 bbl. salt water, ⅞-in. choke, perf. casing 3,756-70 ft., T.D. 4,208 ft.
Rio Grande City: Sioux Oil Corp. 13 Goodrich, 94 bbl., pumping, sand 1,356-67 ft., T.D.
Sun: Sun 6-B Speer, 114 bbl., ⅞-in. choke, T.D. 6,001 ft.
Wildcat: Sun 2 Vela, dry, T.D. 3,905 ft.

Webb County

Glen: Interstate Minerals 62 Lopez, gas well, perf. casing 2,136-42 ft., T.D. 2,147 ft.
Killam: O. W. Killam 6 Garcia-Villareal, 65 bbl., pumping, perf. casing 2,006-10 ft., T.D. 2,060 ft.
O. W. Killam 5 Garcia1Villareal, 60 bbl., pumping, perf. casing 2,014-18 ft., T.D. 2,055 ft.

Zapata County

Escobas: Dulup Oil Co. 6-C Garcia, dry, T.D. 1,114 ft.

SAN ANTONIO DISTRICT

Bastrop County

Cedar Creek: Hubert Kickey 4 Litton, dry, T.D. 1,920 ft.

Bexar County

Gas Ridge: H. J. Bussa 11 Barker, 1½ bbl., pumping, T.D. 420 ft.
Southwest Drilling Co. 14 Covell, 2 bbl., pumping, T.D. 436 ft.
Wildcat: L. A. Douglas 1 Trawalter, gas well, T.D. 1,366 ft.
L. A. Douglas 1 McDonald, dry, T.D. 1,198 ft.

Caldwell County

Bee Creek: Ralph Ogden 3-B Miears, dry, T.D. 2,421 ft.

Travis County

Wildcat: G. A. Gage 1 H. E. Line, dry, T.D. 1,289 ft.

SOUTHWEST TEXAS DRILLING REPORT

Bee County

Crown Central Petroleum Corp. 1 Welder, J. M. Planes Sur., drilling shale 4,781 ft.

Hidalgo County

W. R. Davis Co., Inc. 1 Arizona & Texas Citrus Co., G. Camancho Porcion No. 68, T.D. 5,500 ft., twisted off drill stem, awaiting orders.

Jim Hogg County

Sun 2 East, La Noria de Santo Domingo grant, coring shale 5,115 ft.

Live Oak County

Continental 1 George West, 2 mi. E of Kitty, Michael Caronica Sur. No. 35, drilling shale 4,212 ft.
Edwin M. Jones 3-B West, Nelson Owen Sur. No. 56, coring sand 9,041 ft., showing oil and gas.

Nueces County

Brown & Wheeler 1 Z. A. Booth, drilling shale 2,930 ft.
Humble 1 State, Red Fish Bay, drilling shale 8,970 ft.
R. S. Waldron 1 Singer, 2½ mi. SW of Corpus Christi, top Discorbis 4,955 ft., coring 5,300 ft.

San Patricio County

Wellington 1-C Welder, 2 mi. W of Angelia, Juan Hart & Sons Sur., T.D. 7,005 ft., reaming.

Webb County

Magnolia 1-A Hamilton ranch, Joaquin Galan grant, drilling shale 6,863 ft.

Eastern Texas Fields

(Continued from Page 80)

H. A. Clary 1 A. G. Scott, H. F. Thornton Sur., 2 mi. W of Franklin, derrick.

Rusk County

W. W. Barber 1 J. A. McCreary, H. Huejas Sur., 6 mi. SW of Enterprise, S.D. 3,703 ft.
Ross Sears 1 Pool, George May Sur., Laneville area, show oil in Woodbine sand 4,052-60 ft., cemented casing, T.D. 4,128 ft., perf. casing 4,058½-62 ft., swabbed 2 hr. and started heading oil and wash water, S.I. for storage.

Smith County

Marvin H. McMurrey 1 Guilden & Becker, 26-acre tract in M. Culberson Sur., 1½ mi. W of Mount Sylvan, 8,000-ft. test, first report.
Iowa-Payne Oil 1 Spring Lake Club, John Lane Sur., 5 mi. N of Tyler, first report.
R. L. Pruitt and C. M. Pope, Jr., 1 S. L. Cawthon, SE cor. 50-acre tract in Jacob Mast Sur., 3 mi. E of Bullard, first report.

Upshur County

L. S. White and O. S. Strickland 1 Gorman, S. G. Clayton Sur., 1 mi. SW of Big Sandy, S. D. 1,370 ft.

Van Zandt County

Hickok & Reynolds 1 Brown, Leander Smith Sur., 5 mi. SW Canton, 10¾-in. casing 260 ft., top Pecan Gap 2,370 ft., Austin 3,200 ft., top Woodbine 4,167 ft., salt-water sand 4,270 ft., prepare core deeper.
Jackson & Thompson 1 Bruse, Jr., B. Bruton Sur., 2½ mi. NW of Myrtle Springs, first report.

Wood County

Fred Browning and J. C. Robbins 1 M. N. Andrews SW cor. J. R. Smith Sur., 9 mi. N of Hawkins, loca-

Net Income for 32 Companies Up 15.7 Per Cent

Continued from Page 21)

Standard Oil of New Jersey as to assets and earnings, reported net income of $36,409,055 in 1940 compared with $34,452,710 in 1939. Standard Oil Co. of Indiana, third largest in point of size, was also third with regard to earnings which last year were reported at $33,597,342 as against $34,142,643 in 1939. Fourth largest in respect to both assets and earnings was Texas Corp. which reported net profits of $31,547,662 in 1940 compared with $32,-

COMPARISON OF ASSETS, LIABILITIES, CURRENT POSITION,

	Assets							Liabilities		
	Properties, plant and equipment	Net fixed assets	Permanent investments and advances	Cash and marketable securities	Inventories, crude and refined oil	Total current assets	Total assets	Common stock	Preferred stock	Funded and/or other long-term-debt
Amerada Corp:										
1940	$55,010,384	$12,016,406	$924,593	$2,207,886	$116,098	$4,150,284	$19,740,454	$15,581,375	.....	.....
1939	52,732,377	11,801,630	849,593	2,186,867	140,727	3,997,060	19,415,348	13,581,375	.....	.....
Atlantic Refining Co.:										
1940	258,099,179	145,997,524	3,184,883	20,799,944	22,700,074	57,232,980	208,326,587	65,599,975	14,800,000	25,124,849
1939	250,186,634	144,784,942	4,335,146	17,533,994	21,841,951	52,932,433	203,400,377	66,599,975	14,800,000	25,249,849
Barnsdall Oil Co.:										
1940	35,096,864	13,106,604	2,979,697	2,615,115	1,814,194	5,311,392	22,372,678	11,255,085	.....	7,562,757
1939	33,369,082	11,671,041	7,400,396	3,785,107	851,958	6,129,301	25,762,819	11,293,895	.....	7,575,979
Consolidated Oil Corp.:										
1940	351,182,182	194,838,624	28,975,809	44,633,095	45,929,565	113,745,421	343,575,908	71,094,175	.....	69,030,627
1939	339,428,247	196,742,476	27,957,070	58,060,502	41,684,190	121,911,155	357,848,818	71,094,175	.....	70,481,429
Continental Oil Co.:										
1940	192,437,954	73,081,217	13,522,378	12,805,424	19,633,722	40,130,551	129,024,110	23,692,966	.....	21,906,177
1939	173,242,470	63,132,257	14,090,266	20,850,728	19,373,790	47,922,214	127,661,986	23,692,966	.....	21,071,600
Empire Gas & Fuel Co.:										
1940	[4]387,008,678	[4]260,188,892	11,814,849	6,632,863	12,082,344	29,422,891	312,762,767	37,405,357	54,424,737	[5]87,772,176
1939	[4]391,040,529	[4]279,270,230	11,833,151	6,247,014	12,813,572	29,260,951	324,054,043	37,405,357	54,424,737	[5]91,182,813
Gulf Oil Corp.:										
1940	783,387,974	357,743,026	34,939,620	31,253,508	57,978,451	125,388,013	523,178,724	226,905,050	.....	48,590,061
1939	760,670,316	351,936,147	32,118,344	38,684,596	56,393,002	134,746,999	523,292,917	226,905,050	.....	51,112,595
Houston Oil Co. of Texas:										
1940	63,459,828	40,530,019	6,370,398	5,346,212	307,293	6,857,525	54,193,483	27,465,450	8,947,600	9,307,000
1939	62,722,385	41,171,890	6,367,044	4,671,272	147,576	6,116,758	54,152,425	27,465,450	8,947,600	9,535,000
Humble Oil & Refining Co.:										
1940	493,686,367	313,065,476	6,487,180	24,262,517	26,522,427	64,973,461	386,228,709	175,000,000	.....	42,417,736
1939	472,021,569	304,322,125	7,401,608	20,449,690	24,256,276	60,704,791	375,447,820	175,000,000	.....	42,721,437
Lion Oil Refining Co.:										
1940	21,567,191	10,973,923	106,488	1,195,387	2,137,807	4,884,031	16,396,092	7,580,048	.....	4,593,534
1939	23,795,034	13,015,584	113,530	628,107	1,440,593	3,724,072	17,274,430	7,610,180	.....	6,134,942
Mid-Continent Petroleum Corp.:										
1940	94,953,736	37,074,524	3,356,696	12,166,024	8,793,125	25,002,608	65,892,841	18,579,120	.....	.....
1939	94,565,652	37,668,405	3,309,911	10,607,848	8,375,432	23,588,890	65,103,572	18,579,120	.....	.....
Ohio Oil Co.:										
1940	263,666,624	88,050,956	6,658,604	16,985,547	13,474,175	37,660,160	133,019,301	59,235,791	33,937,700	14,000,000
1939	264,324,147	90,583,528	6,926,482	14,364,542	14,666,077	35,618,648	133,748,393	59,235,791	35,453,700	18,000,000
Pacific Western Oil Corp.:										
1940	21,238,233	7,541,907	11,668,885	616,865	52,252	905,906	20,459,044	10,000,000	.....	2,951,750
1939	20,532,689	8,008,705	11,668,885	372,302	66,038	716,311	20,807,851	10,000,000	.....	3,061,750
Phillips Petroleum Co.:										
1940	359,595,547	173,186,916	3,563,230	13,805,072	20,556,830	45,179,831	226,559,130	132,686,674	.....	32,589,696
1939	352,776,902	174,933,218	3,513,800	11,210,836	17,611,115	39,257,605	223,280,318	132,686,674	.....	33,598,517
Plymouth Oil Co.:										
1940	22,499,528	9,649,365	1,215,468	772,549	17,402	1,348,492	12,574,121	5,250,000	.....	2,785,000
1939	21,495,846	9,665,608	1,785,968	888,486	29,130	1,723,666	13,582,644	5,250,000	.....	2,415,000
Pure Oil Co.:										
1940	[16]233,866,254	[20]134,905,366	14,205,235	9,050,291	13,452,629	34,583,983	184,738,520	39,820,310	72,543,100	3,478,686
1939	[16]228,344,044	[20]131,909,523	12,026,293	8,915,476	13,404,821	33,791,709	178,567,387	39,820,310	72,543,100	2,361,852
Richfield Oil Corp.:										
1940	76,256,137	56,737,567	278,576	14,136,777	13,836,017	33,081,698	92,007,690	74,670,873	.....	9,123,412
1939	67,273,983	53,064,190	230,923	14,958,880	14,546,740	35,247,526	90,589,585	74,670,873	.....	9,512,915
Seaboard Oil Co.:										
1940	[17]7,486,442	[13]3,980,081	2,048,794	2,331,431	366,570	3,273,315	9,560,378	4,977,532	.....	.....
1939	[16]6,949,952	[13]3,988,415	2,443,448	2,204,300	104,662	3,216,548	9,975,317	4,977,532	.....	.....
Shell Union Oil Corp.:										
1940	640,483,827	227,769,292	11,027,948	57,791,130	42,367,988	129,609,609	384,009,655	[18]196,059,375	33,122,500	85,000,000
1939	649,554,365	261,105,471	11,547,660	49,904,773	40,448,953	117,736,637	401,048,417	233,672,821	35,071,800	85,000,000
Skelly Oil Co.:										
1940	113,131,473	48,279,943	2,710,571	2,912,126	3,480,053	12,532,713	63,980,642	14,720,229	.....	16,000,000
1939	105,601,918	45,009,731	4,702,167	3,814,423	3,068,120	11,731,242	62,048,510	14,930,229	6,300,000	9,000,000
Socony-Vacuum Oil Co.:[21]										
1940	946,799,708	455,058,914	232,659,072	101,390,924	93,932,532	242,674,209	940,046,848	475,626,780	.....	133,727,409
1939	990,735,075	493,139,414	175,696,944	73,552,169	106,756,433	245,299,658	929,652,687	475,626,780	.....	126,419,256
South Penn Oil Co.:										
1940	115,126,741	21,738,819	9,561,528	8,053,567	4,142,542	14,276,850	45,966,497	25,000,000	.....	.....
1939	114,222,574	22,403,161	9,559,548	7,737,972	4,694,387	14,420,119	46,569,715	25,000,000	.....	.....
Standard Oil of California:										
1940	765,394,452	445,593,600	58,087,129	44,895,994	37,109,928	109,218,233	623,199,524	323,542,805	.....	25,000,000
1939	753,666,275	446,839,002	62,460,020	41,959,019	36,849,564	105,272,599	628,618,202	327,572,500	.....	25,000,000
Standard Oil of Indiana:										
1940	757,691,896	399,048,310	107,589,823	94,287,472	87,517,783	240,115,744	756,793,245	381,799,562	.....	15,488,465
1939	739,358,059	378,973,235	108,252,302	96,957,558	81,004,641	226,010,255	723,079,697	381,800,358	.....	8,713,073
Standard Oil of Kentucky:										
1940	37,589,116	21,214,101	608,537	9,587,328	6,100,319	21,293,191	43,364,199	26,047,949	.....	.....
1939	36,625,162	21,133,871	504,280	8,948,625	6,853,317	20,838,076	42,697,777	26,047,957	.....	.....
Standard Oil of New Jersey:[15]										
1940	2,306,537,455	1,078,223,509	306,355,428	288,249,394	180,435,990	606,039,815	2,071,537,919	682,089,675	.....	187,553,785
1939	2,404,745,727	1,121,061,376	242,860,070	246,147,800	181,361,428	595,717,796	2,034,989,485	682,147,972	.....	190,638,179
Standard Oil of Ohio:										
1940	77,222,883	47,677,770	3,706,444	9,868,593	10,415,608	30,023,165	83,272,252	18,843,500	12,000,000	5,314,681
1939	71,548,512	43,965,974	3,627,112	12,586,905	8,478,425	26,823,400	76,072,532	18,843,500	12,000,000	6,702,972
Sun Oil Co.:										
1940	166,893,857	93,278,795	14,708,293	5,032,831	20,185,877	43,025,672	152,010,184	84,004,714	10,000,000	18,066,869
1939	151,471,941	84,353,938	14,914,090	15,309,574	15,536,557	45,891,879	146,431,484	79,497,347	10,000,000	21,275,033
Texas Corp.:										
1940	686,540,171	365,656,093	113,781,717	65,336,676	80,820,602	185,440,591	675,196,768	271,899,850	.....	111,834,697
1939	670,490,215	354,847,255	106,577,813	65,475,022	78,208,987	188,658,770	661,067,032	271,903,475	.....	102,521,409
Texas Pacific Coal & Oil:										
1940	22,804,021	10,554,446	6,250	479,483	104,327	987,498	11,703,690	8,882,361	.....	.....
1939	22,860,435	10,379,294	5,274	406,711	142,529	1,071,045	11,627,409	8,882,361	.....	.....
Tide Water Associated Oil Co.:										
1940	329,514,887	132,143,846	15,054,511	14,610,128	28,466,003	56,433,437	205,692,061	63,839,565	50,000,000	38,200,000
1939	313,115,433	126,832,660	18,864,588	12,706,730	28,676,391	55,575,841	204,467,844	63,799,395	50,000,000	36,250,000
Union Oil of California:										
1940	269,563,227	120,260,931	9,728,927	23,151,827	21,554,368	55,507,721	187,469,932	116,656,750	.....	37,958,500
1939	261,569,129	116,536,861	10,242,699	25,945,059	21,924,730	58,641,856	187,066,400	116,656,750	.....	38,018,500
Total 1940	$10,955,801,816	$5,399,167,762	$1,037,887,531	$947,254,980	$856,404,895	$2,380,310,990	$9,004,853,963	$3,696,812,896	$289,775,637	$1,055,377,867
Total 1939	10,901,036,678	5,454,251,157	924,186,425	898,072,887	861,752,112	2,354,295,810	8,919,403,241	3,732,250,168	299,540,937	1,043,554,100

* Deficit or loss.

1. Per share earnings applicable to the common stock after allowing for preferred dividend requirements.
2. Total cash dividends paid on preferred and/or common stocks.
3. Represents actual number of shares outstanding and does not include reacquired or treasury stock.
4. Includes intangibles of $25,362,199 in 1940 and $25,808,432 in 1939.
5. Does not include amounts due to parent company amounting to $72,265,726 in 1940 and $76,919,101 in 1939.
6. Earned per combined preferred shares; common stock all owned by Cities Service Co.
7. Represents preferred dividends only.
8. Excess of current liabilities over current assets.
9. In addition stock dividends of 2 per cent were paid in 1940 and 4 per cent in 1939.
10. Includes contracts, rights, patents, trademarks, etc., amounting to $19,667,936 in 1940 and $19,425,001 in 1939.
11. Excludes assets of $5,787,159 in Mexico and $340,035 in other countries for which full reserves have been set up.
12. Amount included in consolidated net income in respect of dividends from a

886,807 which was reported in the previous year.

The composite balance sheet for the group as of December 31, 1940, showed total assets of $9,004,853,963, an increase of $85,450,722 over the total a year earlier. Combined current assets at the close of 1940 amounted to $2,380,310,990 as compared with $2,354,295,810 at the 1939 year-end, while current liabilities of $581,946,191 on December 31, 1940, compared with $553,271,866 the year before. The ratio of current assets to current liabilities at the end of 1940 was 4:1 as compared with 4:2 on December 31, 1939.

Comparative assets, liabilities, earnings and dividends of the 32 companies for 1940 and 1939 are shown in the accompanying tabulation.

CAPITAL AND EARNINGS OF MAJOR OIL COMPANIES IN 1940

	Liabilities				Income account					
	Earned surplus	Capital surplus	Total current liabilities	Indicated net working capital	Gross operating income	Depreciation, depletion, etc.	Net income	Net income per common share[1]	Total cash dividends paid[2]	Common shares outstanding[3]
Amerada Corp:										
1940	$4,774,541	.....	$1,025,887	$3,124,397	$12,317,086	$5,450,596	$1,775,734	$2.25	$1,577,350	788,675
1939	4,576,156	.....	949,707	3,047,353	9,983,958	4,706,260	1,230,764	1.56	1,577,350	(No par)
Atlantic Refining Co.:										
1940	70,516,694	$10,449,630	12,080,462	45,152,518	134,169,224	15,811,023	6,217,453	2.11	3,255,999	2,663,999
1939	67,940,278	10,113,276	10,524,307	42,408,126	126,902,685	16,181,585	5,023,282	1.66	3,255,999	($25 par)
Barnsdall Oil Co.:										
1940	.....	1,926,083	1,279,670	4,031,722	9,370,017	2,352,088	2,193,471	0.97	1,349,370	2,241,017
1939	.....	4,999,629	1,594,624	4,534,677	10,325,676	3,392,895	1,720,292	0.76	2,020,984	($5 par)
Consolidated Oil Corp.:										
1940	13,087,574	159,027,920	22,601,018	91,144,403	218,974,531	25,640,937	3,792,602	0.28	8,891,537	13,531,915
1939	18,186,509	165,404,476	23,731,745	98,179,410	215,337,552	24,157,082	7,540,880	0.55	10,998,917	(No par)
Continental Oil Co.:										
1940	21,745,510	49,102,899	10,119,742	30,010,809	84,221,960	17,172,943	4,317,657	0.98	4,682,382	4,682,568
1939	22,110,235	49,102,899	9,078,081	38,844,133	81,111,389	15,198,577	6,304,504	1.35	4,682,384	($5 par)
Empire Gas & Fuel Co.:										
1940	3,036,692	12,541,958	14,970,042	14,452,849	89,296,842	15,949,714	2,318,969	[4]4.26	.....	750,000
1939	1,029,890	15,041,958	14,740,420	14,520,531	82,119,139	15,986,729	*231,222	**0.42	.....	(No par)
Gulf Oil Corp.:										
1940	90,463,289	17,146,573	39,478,313	85,909,700	273,078,181	41,098,610	22,150,277	2.44	11,345,252	9,076,202
1939	94,782,969	17,146,573	37,212,986	97,534,014	276,689,026	40,482,106	15,315,781	1.69	9,076,202	($25 par)
Houston Oil Co. of Texas:										
1940	7,650,239	.....	823,193	6,034,332	6,835,491	1,926,090	870,557	0.30	[5]536,856	1,098,618
1939	7,324,469	.....	879,905	5,236,853	7,444,811	1,755,569	1,010,530	0.43	[5]536,856	($25 par)
Humble Oil & Refining Co.:										
1940	137,851,300	554,912	23,835,937	41,137,524	198,692,650	25,760,987	28,107,503	3.13	17,975,680	8,987,840
1939	131,855,013	554,912	20,405,852	40,298,939	199,500,588	26,554,633	29,950,287	3.33	17,975,680	(No par)
Lion Oil Refining Co.:										
1940	1,041,123	.....	3,151,281	1,732,750	10,777,760	1,692,605	456,872	1.05	435,049	435,060
1939	1,016,219	.....	2,513,088	1,210,984	10,831,474	1,639,943	652,352	1.50	434,989	(No par)
Mid-Continent Petroleum Corp.:										
1940	22,179,467	20,448,202	3,453,038	21,549,570	37,876,795	4,084,461	2,967,394	1.60	1,488,250	1,857,912
1939	20,700,324	21,294,221	3,449,309	20,139,581	38,258,785	3,947,883	2,650,501	1.43	1,119,070	($10 par)
Ohio Oil Co.:										
1940	11,140,828	8,581,946	5,888,128	31,772,032	59,400,517	11,412,590	8,733,164	1.02	5,016,444	6,563,377
1939	6,975,609	8,620,850	5,149,916	30,468,732	54,807,382	13,236,441	1,492,086	*0.10	[12]2,127,222	(No par)
Pacific Western Oil Corp.:										
1940	3,174,407	3,416,500	849,712	56,194	2,088,251	1,333,445	*212,986	*0.21	.....	1,000,000
1939	3,507,014	3,416,500	750,862	*34,551	2,476,612	840,584	813,689	0.81	400,000	($10 par)
Phillips Petroleum Co.:										
1940	41,081,214	.....	16,049,829	29,130,002	115,291,936	20,167,355	11,590,318	2.61	8,898,104	4,449,052
1939	38,389,000	.....	14,951,800	24,305,805	112,928,532	18,560,253	9,833,314	2.21	8,898,104	(No par)
Plymouth Oil Co.:										
1940	3,253,069	.....	494,186	854,306	5,528,755	1,441,396	1,442,739	1.38	[9]1,341,089	1,046,446
1939	4,402,468	.....	777,143	946,523	6,804,301	1,412,880	2,475,052	2.38	[9]1,470,000	($5 par)
Pure Oil Co.:										
1940	26,397,206	28,207,088	11,883,676	22,700,307	95,675,216	10,789,592	8,718,057	1.21	4,895,226	3,982,031
1939	22,574,375	28,207,088	10,604,954	23,186,755	94,286,586	9,709,911	8,290,418	1.11	4,880,756	(No par)
Richfield Oil Corp.:										
1940	2,858,416	.....	5,207,482	27,874,216	41,887,654	6,945,337	3,814,589	0.95	2,005,000	4,010,000
1939	1,048,827	.....	5,194,741	30,052,785	42,910,105	6,882,147	2,601,926	0.65	2,003,509	(No par)
Seaboard Oil Co.:										
1940	3,124,105	434,067	574,764	2,698,551	6,393,623	2,631,573	1,300,993	1.05	1,239,683	1,233,283
1939	3,062,795	434,067	909,804	2,306,744	7,314,829	2,829,821	1,746,464	1.40	1,244,383	(No par)
Shell Union Oil Corp.:										
1940	20,761,043	[13]14,036,397	33,633,683	95,975,926	254,103,590	43,804,030	15,654,678	1.05	11,668,996	13,070,625
1939	16,872,684	.....	29,974,547	87,762,090	248,402,482	41,521,632	11,805,712	0.76	8,411,376	($15 par)
Skelly Oil Co.:										
1940	13,261,345	13,055,246	4,838,671	7,694,042	34,570,748	5,867,774	3,316,678	3.28	1,082,549	981,349
1939	12,417,250	13,164,658	3,942,449	7,788,793	33,107,181	5,051,454	2,360,783	1.99	1,126,761	($15 par)
Socony-Vacuum Oil Co.:[14]										
1940	[15]71,626,386	106,694,225	45,377,139	197,297,070	444,003,815	52,363,697	[15]36,409,055	1.17	15,603,020	31,178,341
1939	125,820,351	106,694,225	55,942,575	189,357,083	495,659,064	46,212,376	[15]34,452,710	1.10	15,603,035	($15 par)
South Penn Oil Co.:										
1940	17,831,705	.....	1,674,631	12,602,219	26,066,617	3,058,938	2,100,489	2.10	2,500,000	1,000,000
1939	18,288,748	.....	1,655,853	12,764,266	27,505,596	1,654,906	2,837,042	2.84	3,000,000	($25 par)
Standard Oil of California:										
1940	62,200,167	167,947,621	20,664,970	88,553,263	176,144,614	24,987,594	22,487,586	1.73	3,003,953	13,003,953
1939	67,384,847	167,947,621	17,177,375	88,095,224	177,650,184	27,709,290	17,882,505	1.38	14,413,190	($25 par)
Standard Oil of Indiana:										
1940	180,018,258	114,096,403	48,566,798	191,548,946	358,849,354	34,982,682	33,597,342	2.20	22,908,007	15,271,982
1939	163,620,413	114,096,071	39,172,806	186,837,449	344,450,441	35,178,965	34,142,643	2.24	19,090,029	($25 par)
Standard Oil of Kentucky:										
1940	8,183,585	1,638,373	7,444,290	13,848,901	58,265,311	1,595,642	3,818,408	1.47	3,386,228	2,604,795
1939	7,751,405	1,638,380	7,210,033	13,628,043	53,181,672	1,486,055	3,979,562	1.53	3,386,228	($10 par)
Standard Oil of New Jersey:[16]										
1940	[17]488,458,367	129,629,378	120,184,839	485,854,976	821,684,379	95,832,423	123,886,346	4.54	47,733,535	27,278,666
1939	513,438,915	79,887,975	129,110,598	466,607,198	933,766,173	98,716,992	89,128,756	3.26	[18]33,461,089	($25 par)
Standard Oil of Ohio:										
1940	22,936,665	4,348,723	16,763,976	13,259,189	74,047,858	3,817,629	6,209,008	7.44	2,107,480	753,740
1939	18,835,137	4,345,071	11,419,776	15,403,624	65,115,144	3,524,296	5,602,499	6.64	1,730,610	($25 par)
Sun Oil Co.:										
1940	15,958,344	.....	20,473,370	22,552,302	147,672,725	15,048,193	7,969,068	3.03	[12]2,905,213	2,434,840
1939	15,091,224	.....	16,046,846	29,845,033	131,474,558	13,071,326	6,959,677	2.74	2,918,401	(No par)
Texas Corp.:										
1940	127,747,629	69,887,090	61,208,966	124,231,625	350,260,413	52,441,830	31,547,662	2.90	21,751,988	10,875,994
1939	130,133,899	69,902,160	52,235,725	136,423,045	365,312,019	41,546,815	32,886,807	3.02	21,752,278	($25 par)
Texas Pacific Coal & Oil:										
1940	2,358,254	141,628	317,625	669,873	3,341,144	650,653	479,815	0.54	354,921	888,236
1939	2,233,360	141,628	365,940	705,105	3,799,759	605,987	889,238	1.00	354,904	($10 par)
Tide Water Associated Oil Co.:										
1940	33,148,237	.....	16,459,461	39,973,976	136,645,279	15,979,075	9,519,083	1.14	6,710,126	6,383,957
1939	33,094,647	.....	15,557,121	40,018,720	131,960,505	15,095,540	8,958,971	1.05	7,343,308	($10 par)
Union Oil of California:										
1940	18,584,152	3,699,117	10,571,412	44,936,309	75,036,278	10,179,199	4,606,790	0.99	4,666,270	4,666,270
1939	18,651,053	3,699,117	10,040,979	48,600,877	76,417,591	10,030,360	5,846,241	1.25	4,899,583	($25 par)
Total 1940	$1,546,449,811	$937,011,979	$581,946,191	$1,798,364,799	$4,362,568,614	$572,270,701	$412,157,371	....	$231,315,557	.....
Total 1939	1,593,116,083	885,853,355	553,271,866	1,801,023,944	4,467,835,619	548,881,303	356,154,046	....	210,193,197	.....

50 per cent owned company less provision for operating losses of other 50 per cent owned companies was approximately $4,950,000 in excess of company's equity in 1940 earnings (less losses) of companies whose accounts were not consolidated. In 1939 dividends were approximately $3,060,000 less than equity in such earnings.

13. In 1940 $75,000,000 was transferred from earned surplus as a reserve for contingencies affecting foreign assets.
14. All foreign subsidiaries and branches have been removed from consolidation in 1940 with their net assets stated as an investment in the balance sheet. In 1939 such treatment was accorded only to the subsidiaries operating in the combat area.
15. Subsidiaries operating in Continental Europe, Great Britain and North Africa have been excluded from consolidation and investments therein are shown in the balance sheet at $190,892,348.
16. In addition stock dividends of 2½ per cent were paid in 1939.
17. In addition a stock dividend of 5 per cent was paid in 1940.
18. Common stock changed from no par to $15 par value per share creating a capital surplus of $37,613,446 against which was charged $23,577,048 representing premiums paid by the company on capital stocks of subsidiaries consolidated.

Personal Paragraphs

J. C. RECTOR, who is superintendent of San Joaquin Valley operations for Union Oil Co., has been appointed to the advisory committee of the valley chapter of the A.P.I., replacing J. B. ROBINSON, who was recently placed in charge of Union Oil Co.'s coastal fields.

PHIL K. COCHRAN has been named head of the southern division exploration department of the Carter Oil Co. He has been located in Shreveport, La., for the past year in charge of the geophysical department of Standard Oil Co. of Louisiana and takes his new position under the recent merger of the producing division of Standard Oil Co. of Louisiana with Carter Oil Co.

JOHN W. CHAMBERS, director of accounting department, Shell Oil Co., Inc., returned to New York last week from Curacao, Netherlands West Indies.

WILLIAM H. SPICE, consulting geologist and independent operator of San Antonio, Tex., has been appointed chairman of the nomenclature committee of the South Texas Geological Society.

S. G. DOLMAN, of Santa Barbara, Calif., deputy oil and gas supervisor of the coastal district for the Department of Natural Resources, Division of Oil and Gas, recently passed the examination for the position of chief deputy oil and gas supervisor.

R. B. TANSEL, Tansel Petroleum Co., Tulsa, was taken ill at his office Saturday morning and was removed to a Tulsa hospital. His condition was reported improved the first of the week. Mr. Tansel is one of the veteran marketers of the Mid-Continent area.

BARTON P. SIBOLE, vice president Stanolind Pipe Line Co. and past president of the Tulsa Council of Churches, preached the sermon last Sunday at the First United Presbyterian Church, Tulsa, on the subject, "The Outlook for Tulsa Churches."

BYRON RIFE, independent operator of San Antonio, Tex., and a lieutenant colonel in the Reserve Corps, has been ordered to active duty and is stationed at the toluene plant being constructed by Humble Oil & Refining Co. for the War Department at Baytown, Tex.

D. H. F. MacPHERSON, assistant to CLARENCE S. BEESEMYER, vice president of Gilmore Oil Co. and an employe for 20 years, has been elected to the board of directors of the company.

GORDON LENS McCRACKEN, of the geological department of the Tropical Oil Co. at Barranca, Colombia, was married at London, Ont., Canada, on May 17 to Miss Marion H. Ewing, R.N., formerly of the General Hospital staff at El Centro. They will leave July 30 via New Orleans for Barranca.

GLEN H. McCARTHY, president of Glen H. McCarthy, Inc., Houston, Tex., was elected president of the Texas Trapshooters Association last week. J. B. STEELE, of the same company, was elected vice president of the association.

W. H. MEIER, Atlantic Refining Co., Dallas, Tex., has been reelected chairman of the central committee on district activities of the A.P.I.'s Division of Production. D. T. RING, Preston Oil Co., Columbus, Ohio, is the new vice chairman.

SETH W. CANDEE, Tide Water Associated Oil Co.; C. R. DOOLEY, Socony-Vacuum Oil Co., Inc.; C. E. SHAW, Standard Oil Co. of New Jersey, New York, and DR. W. P. EDMUNDS, Standard Oil Co. of Ohio, Cleveland, are members of a committee arranging the twenty-fourth annual industrial-relations conference at Lake George, N. Y., July 23-26.

DR. SAMUEL T. BUSEY, of Deerfield, Mich., will be one of the honor guests at the celebration "Twenty Years of Oil in Arkansas" scheduled in El Dorado, Ark., June 19-21. Dr. Busey completed the first commercial oil well east of El Dorado in 1921. SAM ZAVELO is president of the celebration committee, and is aided by FRANK H. SMITH, vice president; HENRY McKINNEY, JR., treasurer; ERNIE DEANE, secretary; and E. C. COLLUM and O. T. BREWSTER, committee members.

LLOYD G. SMITH, general superintendent, Lago Oil & Transport Co., Aruba, has returned to Aruba, Netherlands West Indies.

FEDERICO LUIS PANTIN, Caribbean Petroleum Co., and Mrs. Pantin sailed recently for Venezuela aboard the Grace liner Santa Paula.

WALTER C. PEARSON has been transferred from Grass Creek to Midwest, Wyo., by Stanolind Oil & Gas Co., by whom he is employed as apprentice engineer.

C. BEESON NEAL, of Dallas, Tex., secretary of the American Liberty Oil Co., was injured last week in an automobile accident near Huntsville, Tex., where he is now confined to a hospital.

A. M. CROWELL, director, Arkansas Oil and Gas Commission, is recovering in an El Dorado, Ark., hospital from a heart attack. He expects to be back to his duties after a few weeks of complete rest.

W. J. LARSEN, superintendent of Union Oil Co. in Los Angeles Basin, was recently placed in charge of production of crude oil, natural gasoline and natural gas in that district and will maintain offices at Santa Fe Springs, Calif.

R. L. (BOB) KEYES, formerly assistant manager of the California production department of the Texas Co. at Los Angeles, has been transferred to New Orleans, La. Ninety Texas Co. employes and associates gave a farewell dinner in honor of Mr. Keyes, presenting him with a shotgun for Louisiana duck hunting.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

Announcement is made that J. P. Fisher, head of the engineering department of the Quapaw Gas Co., has been named as chairman of the Oklahoma state directors of the committee on national preparedness of the Naval Consulting Board of the United States.

Natural-gas developments and the manufacture of gasoline from casinghead gas are dividing interest in Northwest Louisiana oil circles with the producing branch of the industry.

20 YEARS AGO

President Davis, of the Mid-Continent Oil and Gas Association, in his statement published last week, set forth convincing arguments for a voluntary suspension of operations on the part of oil producers.

In the death of Franklin K. Lane, former secretary of the interior, the oil industry of the country has lost one of its best friends.

E. W. Sinclair, a Tulsa financier and oil man, last week resigned as president of the Exchange National Bank, of this city, to accept presidency of the Sinclair Consolidated Oil Corp., New York.

10 YEARS AGO

S. S. Smith, in charge of the Shell Petroleum Corp. plants in the Mid-Continent, was elected president of the Natural Gasoline Association of America for the coming year.

Proration in the East Texas fields is not yet a fact. The Kilgore pool, with an allowable of 60,000 bbl. a day, produced 124,250 bbl. a day in the past week.

The Parliament of Iraq has ratified the agreement with Iraq Petroleum Co., which was signed March 24 by Sir John Cadman and Iraq ministers. The company agrees to build a pipe line from Kirkuk to Haifa and Tripoli.

FRED W. RAMIN, formerly chief chemist for Independent Refining Corp., Arp, Tex., is now an engineer in the gasoline-testing department of Ethyl Gasoline Corp., Tulsa.

CARL TODD, Bishop Oil Co., has been transferred from San Francisco, Calif., to Wichita, Kans., to be in charge of the geological and land department.

L. T. POTTER, chief production engineer of the Lone Star Gas Co., is taking over the duties formerly held by T. W. SUTHERLAND, superintendent of production, who retired on May 1, after 23 years of service.

E. B. GERMANY, Dallas, Tex., oil producer and operator, acting in his capacity as regional state chairman, has launched a campaign in that state to raise $400,000 in conjunction with a nation-wide drive instituted by the United Service Organizations for National Defense.

M. L. BARLOW, instructor in petroleum technology at Taft Junior College, has been made assistant secretary of the San Joaquin Valley A.P.I. chapter. Mr. Barlow's summer vacations are spent in carrying out special field and research assignments for California oil operators.

AMON G. CARTER, oil producer and newspaper publisher of Fort Worth, Tex., was recently presented a 38-ft. de luxe sedan cruiser speed boat at a surprise party held at the Eagle Mountain Lake camp of ED LANDRETH, Fort Worth independent. The gift was made by Fort Worth oil and business men.

O. G. LEICHLITER, Mudge Oil Co., is the president of a recently organized pipe-line firm known as the Crockett Gathering System, to operate out of the Noelke field in West Texas. GEORGE McGARR, with M. & M. Drilling Co., is the vice president and manager of the pipeline firm, while LEIF OLSON, Olson Drilling Co., is the secretary and treasurer.

30-Year Veteran

G. B. Bogart, one of the Texas Corp. men who were recently presented engraved watches in recognition of having spent 30 years in the service of the company, is one of the many men now prominent in the oil industry who began their careers in the "first" oil country, Pennsylvania.

G. B. BOGART

Mr. Bogart, now vice president and general manager of the Texas Corp.'s subsidiary, Indian Refining Co., was born in Bradford, Pa., and graduated from Bradford High School in 1906. That year marked the end of his formal scholastic training and also marked the beginning of a career in oil that now encompasses 35 years.

In 1906 Mr. Bogart was employed by the Tide Water Pipe Line Co. and remained with it until 1911. Three of those years, 1908 to 1910, inclusive, were spent at Robinson, Ill. In September 1911 Mr. Bogart started work for the Texas Co. at its Port Arthur, Tex., refinery.

He served in various capacities there until July 1, 1922, when he was transferred to Lockport, Ill., as superintendent of the Lockport works. During Mr. Bogart's tenure at Lockport, the refinery there grew from a small skimming plant to a modern refinery with a daily crude capacity of 38,000 bbl. In September 1940 Mr. Bogart was transferred from Lockport to Lawrenceville, Ill., as vice president and general manager of the Indian Refining Co., the position which he now holds.

Mr. Bogart has not succumbed to that common ailment of oil men, golf, but does have an important hobby. It is fishing, and fellow anglers report him to be equally proficient in deep water, fresh water or stream.

Mr. Bogart was married at Bradford, Pa., to Elizabeth Ann Sheehan in 1910. He received the 30-year watch at the 1941 service-award dinner at Indianapolis, Ind.

H. R. MILNER, K.C., president of Canadian Western Natural Gas Co. and Northwestern Utilities, Ltd., has been named president of the Edmonton, Alta., Community Chest Fund.

RANDOLPH M. WEST, JR., has returned to the United States from Venezuela where he was torsion balance observer for the Venezuelan Petroleum Co. He is now in Beaumont, Tex.

W. B. HAMILTON, WALTER D. CLINE, J. S. BRIDWELL, D. H. BOLIN and M. W. BLAIR, Wichita Falls, Tex., oil men, have been elected directors of the West Texas Chamber of Commerce.

SAMUEL MESSER, vice president of the Quaker State Oil Refining Corp., Oil City, Pa., was elected a director of the Oil City National Bank, filling the vacancy caused by the death of James D. Berry.

HUGH A. GRANT, Bradford, Pa., producer in Pennsylvania fields, was elected president of the Bradford District Pennsylvania Oil Producers Association last week. A. C. SIMMONS was reelected vice president; J. P. JONES, formerly secretary, was made a vice president; and GEORGE DAGGETT was made secretary-treasurer.

JOHN W. DALY, HARRY L. THOMSEN and J. C. WATERMAN, seismologists of Shell Oil Co., Inc., who have been working out of the Los Angeles, Calif., office, have been transferred to the San Joaquin division and will work out of the company's Bakersfield office during the next several months.

J. R. VANDEVER, division superintendent; J. F. ADKISSION, division engineer; and MISS MARY LOU HULL, secretary, have been moved in the recent transfer of Sunray Oil Co.'s division offices from Wichita Falls to Fort Worth, Tex. Additional personnel of the office will be moved soon as quarters are arranged in their new offices.

HARRY D. DICKSON, division civil engineer for the Humble Pipe Line Co., and GEORGE A. LEE, assistant division superintendent of the company with headquarters at Midland, Tex., have been temporarily transferred to Portland, Me., where they will assist in the construction of Standard Oil Co. of New Jersey's 250-mile oil line from Portland to Montreal, Que.

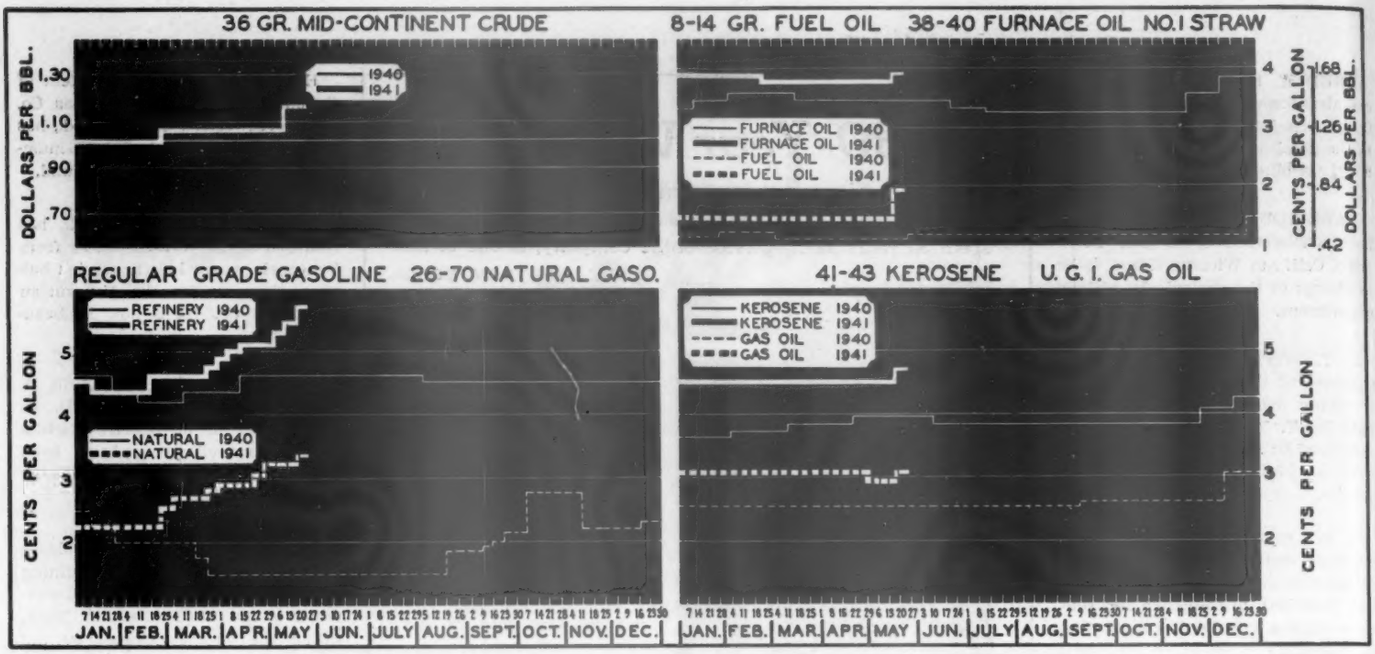
Shifts: T. W. NOON, JR., engineer, Texas Co., from Buckeye, N. M., to San Antonio, Tex.; A. W. TWEELINGS, engineer, Stanolind Oil & Gas Co., from Childress, Tex., to Shamrock, Tex.; W. J. BARNETT, engineer, Standard Oil Co. of Venezuela, from Caripito, Venezuela, to Barcelona, Venezuela; WILLIAM A. WATKINS, superintendent, Carter Oil Co., from Mattoon, Ill., to Shreveport, La.; E. G. TODD, superintendent, Parker Drilling Co., from Bay City, Mich., to Kawkawlin, Mich.; J. W. NORTON, vice president, Texas Gulf Producing Co., from New York City to South Orange, N. J.; CLARENCE VOLLMER, Vollmer Co., from Memphis, Tenn., to De Ridder, La.; WAYNE COFFMAN, engineer, Cities Service Oil Co., from Bartlesville, Okla., to Lyons, Kans.

J. A. AYLWARD, independent producer, Wichita, Kans., is serving as associate general chairman of the Wichita Hospital Building Fund campaign which is seeking to raise $350,000 for a new medical center in that city. Mr. Aylward opened the campaign last week by making a personal gift of $25,000.

L. S. (KING) KOHLE, chief petroleum engineer for Robert S. Lytle, California oil operator, has been placed in charge of operations on the Anderson properties near the Athens field in the Los Angeles Basin. Mr. Kohle formerly supervised operations for his company at Coalinga.

I. A. LANGE, Pryor & Lockhart, Inc., Wichita, Kans., has been elected president of the Petroleum Accountants Society. He succeeds LOUIS H. GRIEB, Walker Oil Co. Other officers elected at last week's meeting were: C. A. ELMBORG, El Dorado Refining Co., first vice president; ARTHUR A. HAIGHT, Vickers Petroleum Co., second vice president, and CLAUDE J. DILLON, Bradley Oil Co. (reelected).

FRED E. ABBOTT, chief petroleum engineer for Tide Water Associated Oil Co. in the San Joaquin Valley of California, presented a paper on deep-pumping problems before 200 members of the Valley chapter of the American Petroleum Institute on Tuesday evening, May 20. The meeting was held at Standard Oil Co. of California's 11-C camp at Taft. A succeeding paper was given by PHIL SAUREMAN, assistant petroleum engineer for Tide Water Associated Oil Co.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Inland Refineries Advance Product Prices to Offset Higher Crude Costs

By H. STANLEY NORMAN

IN the wake of another crude-price advance made effective by all purchasers the fore part of last week, refiners throughout the territory elevated product quotations on gasoline, kerosene, light distillate fuels, natural gasoline and bright-stock lubricating oils. The current price for Mid-Continent crude is the highest prevailing since October 1938 when a general cut of 20 cents per barrel became effective.

The current swing in motor-fuel prices started upward during the middle of March has pushed top quotations on 72-74 (regular) to a top of 5⅞ cents per gallon. The current motor-fuel price is 1.5 cents per gallon higher than the maximum tank-car price prevailing at Mid-Continent refineries in 1940. Advances of ⅛ cent per gallon that have developed almost weekly since the middle of March have had no apparent tendency to discourage buyers.

"Q" Motor Fuel Scarce

In fact, some refiners report difficulty in meeting the demand for "Q" gasoline from production at their own plants and by purchases in the open market. There is no evidence that price is the only factor in the short supplies of "Q"-grade motor fuel. Market conditions, on the other hand, seem to confirm the general report that stocks are depleted and that demand is at least in balance with production. One factor contributing especially to the tightness on "Q" gasoline is the gradual improvement of refining facilities to the end that production of this material is on a decline. Furthermore, consumption of low-octane gasoline in agricultural districts is breaking all previous records. Thus, there is a market condition of increasing demand exerting pressure on reduced supplies.

Strength of the inland-refinery gasoline market extended from the tank-car quotations on through the final consumer outlets. Standard Oil Co. (Indiana) advanced all normal and subnormal tank-wagon prices 0.5 cent per gallon on all three grades of motor gasoline effective May 26. Exception was made in the Chicago metropolitan area. The advance applied to all other points in Illinois, Indiana, Michigan, Wisconsin, Minnesota, North and South Dakota, Iowa, Kansas and Missouri. The company made the same increase on aviation gasolines, naphtha, kerosene and several other refined products. The tank-car price of industrial naphthas was advanced 0.75 cent. The advance was extended to normal and subnormal tank-wagon prices.

Mid-Continent refiners advanced their tank-car quotations on kerosene ⅛ to ¼ cent per gallon late last week, making a top quotation on 42-44 material 4.75 cents per gallon. Top of the kerosene market is up 0.25 cent per gallon, making the range on this material 4.5 to 4.75 cents per gallon at refineries.

Bright stocks were advanced 0.5 cent per gallon to a range of 16 to 21.5 cents, depending on viscosity and pour point. Neutral oils were left unchanged at the higher range of prices which became effective May 13, but light blended oils were raised 0.1 to 0.5 cent per gallon.

Natural Gasoline Advanced

Manufacturers of natural gasoline in Oklahoma raised their quotations ⅛ cent per gallon for 26-70 material and 18-lb. grade is up ¼ cent. North Texas prices are unchanged at 3 cents for 26-70 and 3½ cents for 18-55. The Oklahoma (Group 3) quotations are 3⅝ cents for 26-70 and 4 cents for 18-55.

Spot tank-car prices for residual fuel oils are up 5 cents per barrel on the low side of the market and some grades were raised last week and this by the same amount on the highs of quotations. Demand for residuals is as active as for lighter products but refiners are not in position to step up deliveries and still cover contract commitments which are made mostly to railroads. Current quotations on residual grades of fuel oil range from 80 to 90 cents per barrel. Many buyers with specifications more rigid than standard are paying substantial premiums.

Railroad customers of Mid-Continent refiners are constantly pressing for larger quantities of residual fuel oil than are specified in their contracts. Car loadings are increasing almost weekly as the need expands for transportation of defense materials.

Refined Oil Market Barometer

Higher crude costs and continued demand for larger quantities of all petroleum products drove the refinery market into higher ground this week. Most refiners in the Mid-Continent are now quoting 6 cents per gallon for regular motor fuel, the highest price received since the early part of 1937. Distillate-fuel prices are stiffening in most markets along with lubricating-oil quotations.

MID-CONTINENT: All motor fuels strong at higher prices.

GULF COAST: Trading dulled by tanker shortage. Prices firm.

CALIFORNIA: Gasoline higher and fuel oils are strong.

PENNSYLVANIA: Bright-stock prices are up 1 to 3 cents per gallon.

CHICAGO: Gasoline firm at higher prices. Kerosene quotations advanced.

Eastern Market Gains May Be Retarded by Price Agreement

By J. P. O'DONNELL

NEW YORK, May 26.—Conclusions reached in Washington May 23 when representatives of oil companies agreed not to make substantial increases in quotations without consulting Leon Henderson, administrator of the Office of Price Administration and Civilian Supply, are expected to retard the rate of improvement in East Coast oil market. This market has been improving for the past several weeks and at an accelerated rate following the diversion of tankers to British service.

It is pointed out that no ceiling has been placed on prices and that further increases can be made and probably will be made as costs increase. Higher costs are certain as the industry increases its dependence on forms of transportation other than tankers which normally provide the least costly method. At the same time the industry directs attention to the fact that while some prices are higher than at this time last year, all are still low in comparison with prices of other commodities.

In spite of the prospects of a shortage of supplies by the time the 1941-42 heating oil season is underway, both light and heavy-fuel-oil prices are lower now than they were a year ago. Current refinery tank-car price on No. 2 heating oil in the New York Harbor area is 4.9 cents per gallon against 5.2 cents a year ago, on kerosene is 5.2 cents against 5.9 cents and on No. 6 fuel oil is $1.35 per barrel against $1.50. Only gasoline, with 72-74-octane material quoted at 7.5 to 8 cents against 6.25 to 6.75 cents a year ago, is higher among the major products.

At the same time it was indicated that a study of possible methods of rationing supplies next fall is under way. This was indicated by the appointment of Mr. Shaughnessy to the post of director of the newly created Fuel Section of the O.P.A.C.S. agency. Growing military consumption on top of substantially increased civil demands indicates that the reduced tanker fleet will be unable to supply this market and that some means of curtailing consumption will have to be imposed. It is reported that meetings to consider this problem directly will be held during the last week of May.

The East Coast market remained fairly stable last week with few major price changes. All major product prices in the New York Harbor area were unchanged. House-brand gasoline was advanced to 8.5 cents in Philadelphia during the past week, an increase of 0.5 cent, and the tank-car price of regular-grade material at Norfolk was raised to 7.5 cents. An advance of 0.6 cent affecting all methods of delivery went into effect in New Jersey early last week, raising the consumer tank-car price to 8.5 cents and the dealer tank-wagon price to 9.6 cents. Later in the week similar advances were made at Staten Island to bring quotations there on a par with adjacent New Jersey prices.

Most marketers are keeping a close watch on East Coast inventories as an indication of future developments. Stocks of gasoline dropped 225,000 bbl. during the week ended May 17. Reductions at no greater rates than this through the remainder of the normal season for high gasoline consumption would cut season-end stocks to only 16,000,000 bbl., but the big motoring months are yet to come. However the effect of the expected heavy Memorial Day week-end demand will be watched with interest as a possible clue to what effect the demands of the summer season will have on East Coast stocks.

During the same week an increase of 364,000 bbl. in distillate-fuel-oil stocks was recorded, but this gain was offset by a 400,000-bbl. reduction in residual-fuel stocks. More immediate concern is felt for the latter due to demand for heavy fuel oil by both industry and the Navy. New York City, a heavy consumer of fuel oil, is reported to be studying the possibility of converting as much as possible of its heating equipment to coal firing as it prepares to contract for fuel over the coming year.

Continued improvement in the Pennsylvania lubricating-oil market gave rise to the belief that some quotations would reach levels comparable to those attained during the few months after war was declared. Current low neutral prices, 28 cents on 200 viscosity, 25 pour, and 26 cents on 150 viscosity, 25 pour, are only 2 cents below quotations ruling in late December 1939, when the false indications of war demand brought prices to a peak. Bright stock and steam-refined prices remain well below those levels, ranging from 7 to 11 cents less.

Brisk domestic demand, heightened by the possibility of difficulty in transporting Gulf Coast lubricating oils to the East Coast market, accounts for the strong improvement in the Pennsylvania lube market. This same factor is expected to result in better gasoline, fuel oil and kerosene prices in the western Pennsylvania area. Any improvement in light product prices will lessen the profit burden on lubricating oils with a corresponding beneficial effect on general Pennsylvania market conditions.

Domestic demand, reportedly occasioned by the expansion in the production of munitions, has also resulted in substantial improvement in the wax market. Quotations in the New York Harbor area are reported up to 4.2 to 4.5 cents per pound for crude scale wax and some buyers are reported to be offering as much as 5 cents.

The New York State Commission of Taxation and Finance for March reported total sales of gasoline, including both taxable and nontaxable sales, were 147,970,760 gal. in that month, an increase of 12,809,919 gal. for March 1940.

Crude Advance Strengthens Refinery Products on Gulf

HOUSTON, Tex., May 27.—While Gulf Coast refinery prices on most products were strengthened by the 10-cent-per-barrel advance on Gulf Coast crudes, shortage of tankers continued to curtail business and most sellers were marking time in hope that relief would be forthcoming in the near future. Sales are largely confined to buyers with boats on hand for immediate shipments, and numerous inquiries are unfilled due to shortage of tankers. Just how the situation will be relieved is not known at the present time, but there is little doubt stocks at many refineries, particularly those of independents, are nearing their capacity and it is a question as to how long they can operate before they are forced to curtail crude runs. In spite of this uneasiness, gasoline prices on all grades of leaded and unleaded gasoline were advanced ⅛ cent and it is possible that prices will be advanced further if the acute tanker situation can be cleared up.

No. 2 fuel oil was firm at 3⅛ to 3¼ cents and sellers were anticipating higher prices. Bunker C fuel was still quoted from 85 to 90 cents in cargoes, while bunker oil was firm at 85 cents.

The tanker situation has modified the difficulty some refiners were having in obtaining desired crude.

A.P.I. Weekly Refinery Statistics

Week Ended May 24, 1941

	Capacity reporting (per cent)	Total gasoline stocks (bbl.)	Residual fuel-oil stocks (bbl.)	Gas oil and distillate stocks (bbl.)	Daily crude runs (bbl.)
East Coast	100.0	21,157,000	8,467,000	9,122,000	603,000
Appalachian	91.0	2,957,000	470,000	379,000	123,000
Ind., Ill., and Ky.	90.2	17,700,000	3,479,000	2,883,000	634,000
Okla., Kans., and Mo.	76.9	8,179,000	1,906,000	1,284,000	295,000
Inland Texas	59.6	2,342,000	1,429,000	362,000	136,000
Texas Gulf	89.2	14,630,000	6,975,000	6,043,000	962,000
Louisiana Gulf	97.6	3,489,000	1,659,000	1,233,000	145,000
N. Louisiana and Ark.	51.5	473,000	507,000	321,000	46,000
Rocky Mountains	56.0	1,692,000	502,000	130,000	43,000
California	87.3	15,567,000	66,820,000	10,685,000	545,000
Total reported	86.2	88,186,000	92,214,000	32,442,000	3,532,000
Est. unreported	.....	6,625,000	1,560,000	660,000	335,000
*Est. total	.....	†94,811,000	93,774,000	33,102,000	3,867,000
*Est. total previous wk.	.....	94,867,000	93,987,000	31,882,000	3,805,000
*May 25, 1940	.....	101,557,000	102,932,000	27,413,000	3,580,000

*Bureau of Mines. †Includes 7,392,000 bbl. aviation gasoline.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended May 17, 1941	262,645,000 barrels
Week ended May 10, 1941	263,994,000 barrels
Week ended May 18, 1940	257,647,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

RETAIL OIL MARKETS...

Tank-wagon and filling-station prices on gasoline and kerosene furnished by larger marketing firms

Prices as of May 27, 1941

Taxes

The gasoline quotations given in the following tables include the 1½-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline Tank wag.	Gasoline Dlr. wag.	Gasoline Incl. tax	Kero. tank wag.
Chicago, Ill.	15.1	13.1	4.5	10.5
Decatur	14.4	12.9	4.5	9.0
Joliet	16.6	15.1	4.5	10.5
Peoria	16.6	14.2	4.5	10.5
Quincy	16.4	14.9	4.5	10.3
Davenport, Ia.	16.6	15.1	4.5	10.5
Des Moines	16.4	13.9	4.5	10.3
Mason City	16.8	15.3	4.5	10.7
Duluth, Minn.	18.4	16.9	5.5	11.3
Mankato	18.0	16.5	5.5	10.4
Minneapolis	18.0	15.7	5.5	10.9
La Crosse, Wis.	18.0	16.5	5.5	10.9
Green Bay	18.4	16.9	5.5	11.3
Milwaukee	17.8	16.3	5.5	10.7
Detroit, Mich.	15.6	14.1	4.5	9.6
Grand Rapids	15.9	14.4	4.5	9.6
Saginaw	15.9	14.4	4.5	9.6
Evansville, Ind.	17.6	15.4	5.5	10.3
Indianapolis	17.8	15.8	5.5	10.5
South Bend	17.8	16.3	5.5	10.5
Fargo, N. D.	19.2	17.7	5.5	12.1
Huron, S. D.	18.5	17.0	5.5	11.4
Kansas City, Mo.	14.4	12.9	4.5	9.1
St. Louis*	13.7	12.2	4.5	10.1
St. Joseph	15.9	14.0	4.5	8.9
Wichita, Kans.	14.8	12.5	4.5	8.0

*State tax 2 cents, 1-cent city tax, and 1½-cent federal tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers. On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off, minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective Apr. 19, 1941, f.o.b. Chicago, tank-wagon prices: Standard heater oil, 1-99 gal., 8.75 cents; 100-149 gal., 7.75 cents; 150 gal. and over, 7.25 cents. Stanolex fuel oil No. 1, 1-99 gal., 8.5 cents; 100-149 gal., 7.5 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex furnace oil, 1-99 gal., 8.5 cents; 100-149 gal., 7.5 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex fuel oil A, 1-99 gal., 7.5 cents; 100-399 gal., 6.5 cents; 400-749 gal., 5.5 cents; 750 gal. and over, 4.75 cents. Stanolex fuel oil B, 1-99 gal., 7.5 cents; 100-399 gal., 6.5 cents; 400-749 gal., 5.5 cents; 750 gal. and over, 4.75 cents. Stanolex Bunker C fuel oil, 1-399 gal., 6.0 cents; 400-999 gal., 5.0 cents; 1,000 gal. and over, 4.0 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline Cons'r tank wag.	Gasoline Divided dlr.	Gasoline Inc. tax	Kero. tank wag.
Ohio points	16.0	15.0	5.5	*9.0

*Includes state tax of 1 cent.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline Cons'r tank wag.	Gasoline Net dlr.	Gasoline Inc. tax	Kero. tank wag.
Atlanta, Ga.	17.5	17.5	7.5	10.0
Augusta	17.5	17.5	7.5	9.5
Macon	17.5	17.5	7.5	9.0
Savannah	16.5	16.5	7.5	9.0
Birmingham, Ala.	18.0	18.0	8.5	8.0
Mobile	18.0	18.0	9.5	8.0
Montgomery	19.0	19.0	9.5	10.0
Jackson, Miss.	16.5	16.5	7.5	9.0
Vicksburg	16.5	16.5	7.5	8.5
Jacksonville, Fla.	17.5	17.5	8.5	8.0
Miami	17.5	17.5	8.5	8.0
Pensacola	18.0	18.0	9.5	8.0
Tampa	17.5	17.5	8.5	8.0
Lexington, Ky.	16.5	16.5	6.5	9.0
Covington	14.5	14.5	6.5	9.0
Louisville	16.0	16.0	6.5	8.5
Paducah	16.0	16.0	6.5	8.5

Price basis to tank-wagon consumers, effective January 4, 1937, 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax, and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline Cons'r tank car	Gasoline Dlr. tank wag.	Gasoline Inc. tax	Kero. tank wag.
Atlantic City	13.0	14.0	4.5	7.8
Newark	13.0	14.0	4.5	7.8
Annapolis	13.85	15.35	5.5	9.5
Baltimore	13.25	14.75	5.5	8.5
Cumberland	14.65	16.15	5.5	10.0
Washington, D. C.	11.50	13.00	3.5	9.0
Danville, Va.	15.45	17.45	6.5	10.25
Norfolk	14.25	16.25	6.5	10.00
Petersburg	14.55	16.55	6.5	11.00
Richmond	14.55	16.55	6.5	11.00
Roanoke	15.75	17.75	6.5	10.50
Charles'n, W. Va.	15.55	18.05	6.5	11.5
Parkersburg	14.85	17.35	6.5	11.2
Wheeling	15.25	17.35	6.5	11.8
Charlotte, N. C.	16.80	18.30	7.5	10.1
Hickory	17.35	18.85	7.5	10.0
Mount Airy	17.20	18.70	7.5	10.7
Raleigh	16.55	18.05	7.0	10.0
Salisbury	16.85	18.35	7.5	10.4
Charleston, S. C.	14.65	17.15	7.5	9.25
Columbia	15.50	18.00	7.5	(*)
Spartanburg	16.20	18.70	7.5	(*)

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at a time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery: 100,000 gal. per year, consumer tank-car price plus 0.5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less 0.5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less 0.5 cent per gallon. The above policy also applies in South Carolina, effective January 23, 1939.

*Kerosene business of the company at these points now exclusively handled by dealers.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline Cons'r tank car	Gasoline Dlr. tank wag.	Gasoline Inc. tax	Kero. tank wag.
Philadelphia, Pa.	13.5	14.5	5.5	10.0
Pittsburgh	14.0	15.5	5.5	10.5
Allentown	14.0	15.5	5.5	10.5
Erie	13.5	15.5	5.5	10.0
Scranton	14.0	15.5	5.5	10.5
Altoona	14.0	15.5	5.5	10.5
Dover, Del.	...	15.0	5.5	10.5
Wilmington	...	14.5	5.5	10 0

Price basis to undivided dealers, dealer tank-wagon price less 0.5 cent per gallon.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline Tank truck	Gasoline Serv. sta.	Gasoline Inc. tax	Kero. tank wag.
San Francisco	17.5	18.5	4.5	11.5
Los Angeles	17.0	18.0	4.5	10.0
Fresno, Calif.	18.5	19.5	4.5	12.5
Phoenix, Ariz.	21.5	22.5	6.5	*17.5
Reno, Nev.	20.5	21.5	5.5	13.5
Portland, Ore.	20.0	21.0	6.5	13.5
Seattle, Wash.	20.0	21.0	6.5	13.5
Spokane	21.5	22.5	6.5	16.5
Tacoma	20.0	21.0	6.5	13.5

*Includes 5-cent state tax.

Discount to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck, and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline Cons'r tank car	Gasoline Dlr.* tank wag.	Gasoline Inc. tax	Kero. tank wag.
Albany	14.5	14.7	5.5	7.6
Met. New York	14.1	14.5	5.5	7.9
Buffalo	14.8	15.0	5.5	8.0
Rochester	15.4	15.6	5.5	8.8
Syracuse	15.1	15.3	5.5	8.7
Portland, Me.	14.9	15.1	5.5	8.0
Manchester, N. H.	15.9	16.1	5.5	8.9
Burlington, Vt.	15.5	15.7	5.5	8.2
Boston, Mass.	13.5	13.7	4.5	7.9
Worcester	14.1	14.3	4.5	8.0
Hartford, Conn.	14.2	14.4	4.5	7.5
New Haven	13.6	13.8	4.5	6.8
Providence, R. I.	13.6	13.8	4.5	7.7

*Undivided.

Effective August 8, 1940, the company changed its commercial consumer policy in New York and New England to the following:

Full compartment deliveries: Accounts buying less than 20,000 gal. annually, 0.5 cent above the commercial-consumer price; accounts buying from 20,000 to 120,000 gal. annually, commercial-consumer price; accounts buying 120,000 gal. annually and above, 0.25 cent off consumer price. Split compartment deliveries: Delivery of less than a full compartment, 250 gal., commercial-consumer price plus 1 cent. Steel-barrel deliveries: Commercial price plus 3 cents.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline Tank wag.	Gasoline Inc. tax	Kero. tank wag.
Denver, Colo.	14.0	5.5	10.5
Grand Junction	17.5	5.5	12.0
Pueblo	14.0	5.5	9.0
Casper, Wyo.	16.5	5.5	11.5
Cheyenne	15.5	5.5	11.0
Billings, Mont.	17.5	6.5	12.0
Butte	16.5	6.5	13.0
Great Falls	16.5	6.5	12.0
Helena	16.5	6.5	12.5
Salt Lake, Utah	17.0	5.5	14.0
Boise, Idaho	†19.6	6.5	16.0
Twin Falls	†20.6	6.5	16.5
Albuquerque, N. M.	*17.0	7.0	9.5
Roswell	*15.0	7.0	8.0
Santa Fe	‡17.5	7.5	9.5

*Includes city tax of 0.5 cent. †Includes toll-bridge tax of 1 mill. ‡Includes city tax of 1 cent.

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline Cons'r tank car	Gasoline Dlr. tank wag.	Gasoline Incl. tax	Kero. tank wag.
New Orleans, La.	15.25	17.25	8.5	‡10.0
Baton Rouge	15.25	17.25	8.5	‡10.5
Alexandria	15.25	17.25	8.5	‡10.5
Lafayette	15.50	18.00	8.5	‡10.0
Lake Charles	15.50	18.00	8.5	‡10.0
Shreveport	14.50	17.00	8.5	.10.0
Knoxville, Tenn.	18.00	20.50	8.5	12.5
Memphis	15.75	18.25	8.5	10.5
Chattanooga	17.50	18.50	8.5	12.0
Nashville	17.25	19.00	8.5	10 0
Bristol	18.25	18.25	8.5	12.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline Tank wag.	Gasoline Incl. tax	Kero. tank wag.
Texarkana, Ark.	14.0	5.5	6.0
Fort Smith	14.0	5.5	6.5
Little Rock	17.25	8.0	8.0
Muskogee, Okla.	13.00	5.5	7.0
Oklahoma City	12.50	5.5	7.0
Tulsa	12.50	5.5	7.0

Tank wagon represents price to consumers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline Tank wag.	Gasoline Dlr.	Gasoline Incl. tax	Kero. tank wag.
Omaha	17.9	13.4	6.5	9.8
McCook	17.5	14.4	6.5	8.5
Norfolk	18.0	16.4	6.5	9.9
North Platte	18.3	16.5	6.5	10.2
Scottsbluff	17.4	14.5	6.5	9.5

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Texas

	Gasoline Tank wag.	Gasoline Serv. sta.	Gasoline Incl. tax	Kero. tank wag.
Dallas, Tex.	11.5	15.5	5.5	6.0
Fort Worth	11.5	15.5	5.5	7.0
Houston	12.0	16.0	5.5	8.0
San Antonio	12.5	17.0	5.5	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Tank-Wagon Changes

Standard Oil Co. (Indiana) advanced dealer and consumer tank-wagon prices on all grades of motor fuel and kerosene 0.5 cent per gallon throughout its territory May 26, excepting Chicago where the increase applied only to kerosene.

Standard Oil Co. of Nebraska reduced dealer tank-wagon prices on gasoline 0.5 cent at McCook and 1 cent per gallon at Scottsbluff, Neb., effective May 16 and May 10, respectively.

Standard Oil Co. (Kentucky) advanced consumer and dealer tank-wagon prices 0.5 cent per gallon for gasoline May 12 at Augusta and Savannah, Ga.; Mobile and Montgomery, Ala.; Vicksburg, Miss.; Jacksonville, Miami, Pensacola, and Tampa, Fla.; Lexington, Covington, and Louisville, Ky. Prices were advanced 1 cent on the same day at Atlanta and Macon, Ga., and Birmingham, Ala.

Standard Oil Co. of Louisiana advanced the consumer tank-car and dealer tank-wagon price for regular gasoline 0.25 cent per gallon May 21 at Memphis and Nashville, Tenn.

Standard Oil Co. of New Jersey advanced gasoline 0.5 cent per gallon May 19, advanced 1 cent in West Virginia, while in Virginia tank-car prices were raised 1 cent per gallon and dealer tank-wagon quotations were advanced 0.5 cent. New Jersey motor-fuel prices were advanced 0.6 cent per gallon May 20.

Standard Oil Co. of California advanced all grades of motor fuel 0.5 cent per gallon in California, Arizona, Nevada, Oregon, and Washington May 23.

PRICES OF REFINED PRODUCTS...

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of May 27, 1941

(Most prices in cents per gallon)

The quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils. Octane ratings in Middle West, Mid-Continent, and Southwest are based on A.S.T.M. method of testing.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
72-74 octane (regular)	.05¾	.05⅞
63-66 octane	.05⅝	.05½
60 octane and below	.05	.05⅛
60-62 400 grades:		
72-74 octane (regular)	.05½	.05⅝
63-66 octane	.05¼	.05⅜
60 octane and below	.04⅞	.05

NORTH TEXAS—

U. S. Motor grades:		
72-74 octane (regular)	.05⅝	.05¾
63-66 octane	.05¼	.05⅜
60 octane and below	.04⅞	.05
60-62 400	.04¾	.05½

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
72-74 octane (regular)	.05⅝	.05¾
63-66 octane	.05¼	.05⅜
60 octane and below	.04⅞	.05

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
72-74 octane (regular)	.05⅝	.05¾
60 octane and below	.04⅞	.05

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
72-74 octane (regular)	.05¾	.05⅞
63-66 octane	.05⅝	.05½
60 octane and below	.05	.05⅛
60-62 400 grades:		
72-74 octane (regular)	.05½	.05⅝
63-66 octane	.05¼	.05⅜
60 octane and below	.04⅞	.05

PENNSYLVANIA (inland refineries)—

74-76 octane (regular)	.0675	.07
80 octane (1939 Research)		.075

CALIFORNIA (domestic movement)—

58-60 400, 65 oct. and higher	.06	.07
54-56 U. S. Motor	.0575	.0625

EAST COAST (domestic)—

U. S. Motor (minimum 72 octane):		
New York (Bayonne)*	.075	.080
Philadelphia		.080
Boston		.082
Baltimore		.070
Charleston, S. C.		.075

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery ¼ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
72-74 octane (leaded)	.05½	.05¾
70-72 octane (unleaded)	.05¾	.05⅞
68-70 octane (unleaded)	.05½	.05¾
Below 68 octane (unleaded)	.05¼	.05⅓

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.03⅜
Grade 18-55		.04

NORTH TEXAS—

Grade 26-70		.03
Grade 18-55		.03½

CALIFORNIA—

75-85 375-390	.045	.05

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.03

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110-flash, 540-550 e.p.	.03¾	.03⅞
41-43 gr., 300-320 i.b.p., 110-125 flash, 500-520 e.p.	.03⅞	.04
46-48 gr., 210-230 i.b.p., 480 max., e.p.	.04⅛	.04¼

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

42-44	.0450	.0475
41-43	.04375	.04625

NORTH TEXAS—

41-43	.0425	.04625

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.04375	.04625

ARKANSAS (Ark. and N. La. del.)—

41-43	.04375	.04625

PENNSYLVANIA (inland refineries)—

46	.05375	.05625
45	.055	.0575

CHICAGO (Based on Group 3)—

42-44	.0450	.0475
41-43	.04375	.04625

CALIFORNIA (Pac. Coast market)—

38-40 high-burning test	.04½	.05½

NEW YORK (Bayonne, N. J.)—

41-43		.052

GULF COAST (domestic)*—

41-43		.03⅝

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.0425	.0450
No. 1 (white, 38-42)	.03825	.04125
No. 1 straw, 38-40	.0350	.03625
No. 2 straw, 32-36	.0350	.03625
No. 3 zero to 10, 28-32	.03375	.0350

NORTH TEXAS—

No. 1 (white, 38-42)	.0375	.03825
No. 1 straw, 38-40	.03375	.0350

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.0325	.03375

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36	.0325	.03375

CHICAGO (Based on Group 3)—

Range oil	.04	.0425
No. 1 (white, 38-42)	.03825	.04125
No. 2 straw, 32-36	.035	.03625
No. 3 zero to 15, 28-32	.03375	.035

NEW YORK (Bayonne, N. J.)—

*No. 1		.052
*No. 2		.049
*No. 3		.049

*Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

No. 5, low pour point, 18-22	.85	.90
No. 6, 15 and above, 8-14	.80	.85

NORTH TEXAS—

No. 5, low pour point, 18-22	.80	.85
No. 6, 15 and above, 8-14	.75	.80

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.75	.80

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.03⅛	.03¼
No. 5, low pour point, 18-22	.85	.90
No. 5, 15 and above, 18-22	.80	.85
No. 6, low pour point, 10-16	.80	.85
No. 6, 15 and above (10-16)	.80	.85

PENNSYLVANIA (inland refineries)—

36-40	.04875	.0525

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.10	1.25
24 plus diesel, per bbl.	1.10	1.25
24 plus diesel (bunkers)	1.20	1.35
12-16 bunkers at tidewater)	.75	.85
10-16 (cargo lots)	.75	.85
12-17 (tank cars)	.65	.75
10-17 (high sulfur)	.55	.65
San Joaquin Valley:		
10-18 (tank cars)	.70	.85
24 plus diesel, per bbl.	1.10	1.25
San Francisco:		
24 plus diesel, per bbl.	1.35	1.40
24 plus diesel (bunkers)	1.40	1.50
10-16 (bunkers)	.80	.85

GULF COAST—

No. 2 fuel	.03½	.03¼
43-47 diesel	.03¼	.03⅜
48-52 diesel	.03⅜	.03⅝
53-57 diesel	.03½	.03⅞
58-and-above diesel	.03⅝	.03¾
Diesel bunkers		1.45
Bunker C (bulk cargoes)	.85	.90
Bunker C (bunkers)		.85

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.050
28-30 diesel (lighterage 6¼c per. bbl.)		2.00
28-30 diesel (tank cars)	.049	.05
Bunker C (to ocean-going ships in N. Y. Harbor)	1.35	1.50
Industrial fuel (tank cars)		.038

Ligtherage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

200-210 D, 10-25		.215
150-160 D, 0-10		.170
150-160 D, 10-25		.165
100-110 D, 0-10		.165
100-110 D, 10-25		.160
Steam refined:		
600 dark green (untreated)		.105

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour point		.215
15 pour point		.205
25 pour point	.19	.20
Steam refined:		
600	.105	.115
650	.105	.13
600 flash	.105	.14
630 flash	.115	.15

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:		
150-3		.09½
180-3		.10
200-3		.10
250-3		.11½
280-3		.12
280-4		.11½
300-3½		.13
350-3½		.13½
400-3½		.14
500-3½		.14½
600-3½		.15
100-2½ paraffin oil 10-25		.06
10-25 pour point:		
200-3		.09½
250-3		.11
280-3		.11½
280-4		.11

CALIFORNIA (moving to dom. market)—

Pale oils:		
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

GULF COAST—

Pale oils:		
100-3	.05¼	.05¾
200-3	.07¼	.07¾
300-3	.07¾	.08¼
500-3½	.08⅛	.09
750-3½	.08¾	.09¼
1,200-3½	.08⅞	.09⅜
2,000-4	.09	.09½
3,000-4		.10½
Red oils:		
200-5-6	.06⅞	.07
300-5-6	.07¼	.07½
500-5-6	.08	.08¼
750	.08⅜	.08½
1,200-5-6	.08½	.08⅝
100-2½-3	.07¼	.08

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pour point		.28½
10 pour point		.27½
15 pour point		.26½
25 pour point	.24	.28
200 vis., at 70° F., 3 color:		
Zero pour point		.30½
10 pour point		.29½
15 pour point		.28½
25 pour point	.26	.30

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.03	.03⅛

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale	.042	.045
124-126 (A.m.p.) w.c. scale	.042	.045

NEW YORK—

Wax in bags fully refined:		
125-127 (A.m.p.) wax		.0560
128-130 (A.m.p.) wax		.0560
130-132 (A.m.p.) wax		.0585
133-135 (A.m.p.) wax		.0615
135-137 (A.m.p.) wax		.0640
Crude scale:		
124-126 (A.m.p.) w.s.	.042	.045
124-126 (A.m.p.) y.s.	.0375	.040
Petrolatum in barrels, carload lots:		
Dark green	.02625	.03000
Amber	.02875	.03125
Extra amber	.02500	.02625
Lily white	.04875	.05375
Snow white	.05625	.06375
Cream	.04000	.04375

Export Prices

GASOLINE

GULF COAST—

60-62 400	.04½	.05⅛
61-63 390	.04½	.05¼
64-66 375	.04½	.05¼

LOS ANGELES—

U. S. Motor grades:		
Above 69 octane	.0575	.06
65-69 octane	.055	.0575
60-65 octane	.0475	.0525

KEROSENE

GULF COAST—

41-43 water white	.03⅝	.03½

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s. in bbl.)—

Cylinder stocks:		
600 S.R. unfiltered	.18	.20
630 S.R. unfiltered	.185	.2025
600 flash, S.R.	.185	.205
650 flash, S.R.	.20	.21
Bright stock:		
Light, 25 pour point	.27	.285

NEUTRAL OIL

200-3 color	.33	.36
150-3 color	.31	.34

PARAFFIN WAX

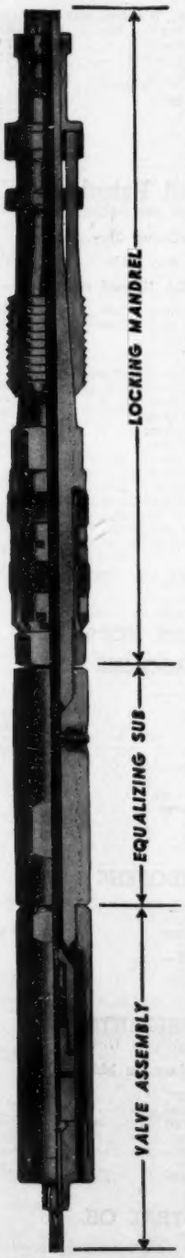
NEW YORK (prices per lb.)—

123-125 A.m.p.		.0560
125-127 A.m.p.		.0560
128-130 A.m.p.		.0560
133-135 A.m.p.		.0615
135-137 A.m.p.		.0640
Crude scale:		
124-126 w.s.	.042	.045
124-126 y.s.	.0375	.04

EQUIPMENT PROGRESS...

New Equalizing Sub Offered By Otis Pressure Control

The purpose of the new Otis equalizing sub is to provide a safe and fast means to equalize pressures across Otis removable bottom-hole safety valves, regulators, and chokes, particularly where well conditions, such as unbalanced tubing and casing pressures, casing packers, etc., prohibit equalizing by connecting the tubing and casing together at the surface. It is absolutely necessary that pressures across all Otis subsurface controls be fully equalized before they can be pulled. This new tool has proved to be the safest and simplest of all equalizing devices for this operation.



This device is merely a bypass valve built in the side of a special sub made to go between the mandrel assembly and the main-valve assembly of Otis subsurface controls. Consequently, the position of the bypass is below the tubing sealing cups and above the main control valve. The bypass consists of a ground seat built into the side of the sub in which a valve and stem fit. A small spring acts to hold the valve closed while an orifice plate pressed in the sub holds the assembly in place. Under normal operations the valve is held closed by the differential pressure across the subsurface control and at this time serves no purpose.

To open the bypass valve a special equalizing tool is run in the hole on the conventional steel line, jars and stem. This device has a long prong with a tapered end extending from the body of the tool. This prong passes through the bore of the mandrel assembly and sub and forces a protruding valve nose back, opening the bypass. One stroke of the jars is usually sufficient to drive the prong past the valve to lock it open. The bypass valve is designed so the effective opening through the ground seat is larger than the effective opening in the orifice plate. This feature reduces the differential across the ground seat and minimizes the cutting action on these parts. As soon as the prong is pulled out of the sub the small spring snaps the valve closed making it ready for normal operation again.

This sub has approximately the same outside diameter and inside diameter as that of the mandrel assembly on which it is run. It is made to fit all of the latest Otis Type B regulators, safety valves, and chokes.

The principal advantage of this equalizing sub is the fact that under no conditions can the tools be blown up the hole while in the process of equalizing the pressures. Another valuable feature is the arrangement by which the bypass is locked open by one operation of the jars. This eliminates the necessity of continuous jarring to open the valve.

New Reducing Butt-Welding Elbow Added to Midwest Lines

A reducing butt-welding elbow has been recently developed by Midwest Pipe & Supply Co., St. Louis, Mo., to meet the need that has existed for a long time. In a pipe line where it is necessary to change both direction and pipe size, this reducing elbow will take the place of two welding fittings: (1) a straight elbow and (2) straight reducer. The result will be a reduction in cost of the welding fittings, elimination of one or two welds, saving in erection time and expense and improved appearance.

The Midwest reducing elbows have the dimensional accuracy and uniformity of its American Standard and Long Tangent elbows. They also have the beneficial effects of the metal being worked in compression instead of being extended or stretched. After forming, welding, and compression-sizing operations these elbows are stress relieved. Bursting pressure and other destructive tests have proved Midwest reducing elbows stronger than pipe or tubing of corresponding sizes. Made of wrought steel, the fitting is available in standard and extra heavy weight in nominal pipe sizes ranging from a 2 by 1½-in. to one 12 by 6-in.

TRADE LITERATURE

B. & W., INC., 302 Merchants & Manufacturers Building, Houston, Tex.—Bulletin 102, describing its wall-cleaning guides for cementing casing, whereby the guides serve to center the casing, remove the mud cake, prevent cement channeling, and improve primary cement job. Included are instructions on where and how to place the guides and their specification and construction.

MIDWEST PIPE & SUPPLY CO., INC., 1450 South Second Street, St. Louis, Mo.—Bulletin WF-41, illustrating and describing the complete line of Midwest welding fittings. Specifications and list prices are given on all types of butt-welding elbows, stub ends, reducers, flanges, saddles, tees, nipples, and other fittings including its new reducing butt-welding elbows.

DURAMETALLIC CORP., 2104 Factory Street, Kalamazoo, Mich.—4-page folder covering a new type of mechanical seal for centrifugal, rotary pumps, agitators and wherever the sealing of highly volatile, gritty and/or corrosive liquids are being worked.

New Explosionproof Motor Announced by Century Electric

This motor is constructed to meet the specifications and carry the label of Underwriters' Laboratories, Inc., for Class 1, Group D, installations—where the

surrounding atmosphere is charged with explosive quantities of acetone, alcohols, gasoline, laquer, naphtha, natural gas, petroleum, or solvent vapor. The motor, constructed by Century Electric Co., St. Louis, Mo., will resist the pressure of an explosion of any of these gases should one occur inside the motor and not cause an explosion in a similar atmosphere outside the motor.

New Stack Blower Operates on Little Steam

A new high-velocity steam stack blower was recently introduced to the oil-field industry. This blower, according to the manufacturer, will furnish enough forced draft in the stacks of the boilers to operate at 200 per cent capacity on as little as 2 per cent of the steam generated by the boiler.

It is claimed this blower will give the maximum velocity to the flue gases, and will cause the least resistance in the stacks of the boilers. Streamlined in design, it is made of tough malleable iron, and is equipped with stainless steel nozzle jets. It is built to stand up under the roughest oil-field conditions, and will give long satisfactory service. A new bulletin on this blower may be had by writing to the Inferno Co., Department OGJ, Shreveport, La.

Instrumentation Services Offered by Instruments, Inc.

Instruments, Inc., 6815 Hunters Glenn Road, Dallas, Tex., is adequately equipped to handle instrumentation problems of refining and pipe-line companies; on a partial supervision basis, contract installation, contract supervision, or periodic service.

Where the instrument equipment has been purchased on a strictly delivered basis, and only partial supervision is required, Instrument engineers are available to provide any or all of the following: Engineering service and preparation of installation diagrams, supervision of instrument installation, adjustment and testing of instruments, final inspection and instruction of operators, and subsequent service if required.

When desired, the company will accept entire instrument responsibility and provide a quotation covering complete installation. On those installations where it will prove advantageous for the purchaser to have the actual labor of installations, wiring and piping provided by others, a quotation covering equipment and supervision may be obtained. Under this

type of contract the company assumes the responsibility for the instruction and direction of the installers and for inspection of the work in progress. It also offers periodic service contracts for all instrument users. These contracts may be obtained to supplement installation or supervision contracts.

AMONG EQUIPMENT MEN...

Larkin Packer Rearranges Sales Territories

Larkin Packer Co., Inc., has announced a rearrangement of sales territories, effective May 1. The northern division, under the supervision of H. S. Lindenmuth, now comprises an area including Illinois, Indiana, Kansas, Nebraska and Oklahoma. Mr. Lindenmuth will maintain headquarters in Tulsa. Prior to his recent appointment as manager of the northern division, he served as city salesman in Tulsa, and previously covered the Kansas territory for Larkin.

H. S. LINDENMUTH

The western division now includes the Panhandle of Texas, North Texas, West Texas and New Mexico, and is under the supervision of W. H. Adamson, who will maintain headquarters in Odessa, Tex. Mr. Adamson was district manager for the northern division, prior to his appointment in West Texas, and previous to that time he worked the West Texas territory for Larkin.

The southern division now includes East Texas, Louisiana, Arkansas, Mississippi, the Gulf Coast and Southwest Texas. Tom E. Alexander, manager of this division, makes his headquarters in Houston, Tex.

Coincidental with the division changes, Mr. Larkin appointed H. H. Francis to work the Kansas territory. He replaces Ed Wallace, who was recently called to military service. Mr. Francis will make headquarters in Great Bend, Kans. Jack Hancock, a resident of Wichita Falls, Tex., will work the North Texas territory, succeeding H. A. Ferguson. Mr. Hancock will continue to maintain headquarters in Wichita Falls. H. J. Stewart, who recently joined the Larkin sales force after a number of years in the engineering department of a major oil company, will work in Houston and the surrounding territory.

BUSINESS NOTES

Hugh Trimble, formerly sales manager for National Supply Co., now is assistant secretary-treasurer of oilfield equipment division of Texasteel Manufacturing Co., Fort Worth, Tex. Phil Edwards, formerly with Mid-Continent Supply Co., has joined Texasteel as chief mechanical engineer.

Bernie R. Thompson, formerly with Halliburton Oil Well Cementing Co. for the past 3½ years, is now oilfield representative for the Lone Star Cement Co. with headquarters in Ardmore, Okla. He will cover northern Texas and Louisiana, Arkansas, and southern Oklahoma.

John Zink Appoints C. E. Morris Head of Dallas Branch

The John Zink Co., of 4401 South Peoria, Tulsa, announces the appointment of C. E. Morris as manager of its Dallas, Tex., branch, located at 2405 South Harwood. Mr. Morris has a wide acquaintance in Texas, being a Texan and a graduate of the University of Texas. This new branch will carry a wide assortment of John Zink floor furnaces, unit heaters, and industrial burners, as well as all types of oil-production and refinery burners.

J. S. Ament to Represent Inferno in Gulf Coast Area

J. Shelby Ament, sales engineer, has recently been assigned as a special representative to cover the entire Gulf Coast area for the Inferno Co. During the past 6 years Mr. Ament has gained wide experience in oilfield equipment engineering and drilling operations, and is well acquainted with the Gulf Coast operators and their particular requirements. Majoring in geology, Mr. Ament graduated from Centenary College in 1929. He has represented Inferno for some time in South Louisiana and he will make his headquarters at Shreveport, La., after June 1.

R. R. Cole Made Vice President Of Monsanto Chemical Co.

Election of Robert Rast Cole, of Anniston, Ala., to a vice presidency of Monsanto Chemical Co., was announced recently by the board of directors at a meeting in St. Louis, Mo. Mr. Cole is general manager of Monsanto's phosphate division which has plants in Monsanto, Tenn., Anniston, Ala., and Carondelet, Mo., and a fourth plant under construction at Trenton, Mich. He is a recognized authority on the production of elemental phosphorous and phospate products.

After taking a special course in mechanical engineering at Cornell University, Mr. Cole worked in railroad shops for several years. He then became chief engineer of the Southern Manganese Corp. In 1920 he became general superintendent of Southern Manganese Corp., later the Swann Corp., which position with other titles he held until 1932 except for 1928 and 1929 which he spent in France constructing a plant for Societe Phosphates de Tunisiens.

When Swann was absorbed by Monsanto in May 1935, Mr. Cole became assistant to the late R. J. Hawn, vice president. In November 1938, he was made production manager of the phosphate division, and in May 1939, general manager in charge of the division's research and sales activities as well as its manufacturing operations.

Lindahl Made Vice President Of Carnegie-Illinois Steel

Carnegie-Illinois Steel Corp. has announced the election of Oscar N. Lindahl as vice president in charge of finance, succeeding M. D. Howell, who will devote all of his time to duties as vice president—financial, secretary and treasurer of United States Steel Corp. of Delaware. Mr. Lindahl has been associated with the Universal Atlas Cement Co. since 1911, most recently as comptroller and secretary.

Heinzerling Joins Vinson Supply Co. at Tulsa

John H. Heinzerling, formerly research engineer in the Port Arthur, Tex., refinery of the Texas Co., is now with the Vinson Supply Co. of Tulsa and Dallas, Tex. Before coming with Vinson, Mr. Heinzerling was for over 6 years with the Dallas office of a leading instrument company as a control engineer.

With the Vinson Supply Co., Mr. Heinzerling will be in charge of all special control problems in the producing end of the oil business on Fisher automatic control equipment. He will work out of the Tulsa office in the sale, service, and installation application of Fisher automatic controls.

PETROLEUM EXPOSITION OFFICIALS HOST TO NOMADS AT TULSA DINNER

W. G. Skelly, president of the International Petroleum Exposition, presented awards in recognition of their services during the 1940 exposition to the Los Angeles, Houston, Tulsa and New York chapters of the Nomads at a dinner held May 20 at the Tulsa Club. Approximately 60 members of the four chapters were present at the dinner at which exposition officials were hosts. The Nomads were in charge of the entertainment of foreign delegates at the 1940 exposition held at Tulsa and plans were inaugurated at the dinner to act as hosts at the exposition to be held in May 1942.

Seated at speakers table at the dinner were (left to right): R. L. Dudley, Gulf Publishing Co.; Rex Hamaker, Reed Roller Bit Co.; E. L. Decker, Martin-Decker Corp.; W. G. Skelly, Skelly Oil Co.; Ted Sutter, Baker Oil Tools, Inc.; W. G. Green, Engineering Laboratories, Inc.; W. B. Way, International Petroleum Exposition; Fred E. Cooper, Fred E. Cooper Co.; H. M. Cosgrove, Purchasing Agents Association of Tulsa; P. C. Lauinger, The Oil and Gas Journal; John Baird, Baird Mfg. Co.; G. H. Eichler, Petroleum Equipment.

CLASSIFIED ADVERTISING

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Leases and Drilling Blocks

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up.—Owners—Address Attorney, Box 1122, Little Rock, Ark.

NEW MEXICO
Oil and Gas Leases and Royalties.
ROY G. BARTON, Hobbs, N. M.

60 ACRES Semi Proven lease for development, on override bases in Texas. Wells flow. Box A-432, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE: Oil and gas leases and small production located in Kentucky shallow field, also tracts of proven Fluorspar and zinc deposits. Reports on request. W. P. HARLEY, Bowling Green, Kentucky.

MICHIGAN—1,160 acres to lease for Oil and Gas. Map free. Owner: L. J. Meldrum, 8354 Epworth, Detroit, Mich.

VISITING Tulsa end May, would acquire drilling block, royalty, leasehold or purchase in fee, with mineral rights, in undeveloped but proven, or producing gas or oil field. Preferably Hugoton-Amarillo districts. Henry Berger, Box A-510, The Oil and Gas Journal, Tulsa, Oklahoma.

WILL sacrifice for quick sale account of health, Lea County, New Mexico 40 acres each Sections 15 and 21, 17S-36E. Lock Box 126, Vinton, Va.

OIL LEASE near drilling well $500. Geology and title certificate furnished. Address: Owner, Box 1203, Abilene, Tex.

M E		State Oil & Gas Leases and		M E
N E	X I	Landowner's Royalties	N E	X I
W	C O	Harry S. Wright Farmington, N. M.	W	C O

EAST TEXAS Woodbine sand wildcats. Leases offer 10 to 50 for one bets. Getting ready to happen shortly new areas. E. CROFT, PROCTOR, TEXAS.

INVESTIGATIONS—REPORTS
SURVEYS—MAPS
Producing and Nonproducing properties in Texas.

OILFIELDS SERVICE CO.
Box 2951 Houston, Tex.

WANTED — Competent individual or company to drill test well in wildcat territory, located in Saline County, Southeastern Nebraska. One hundred and sixty miles due north of McPherson County, Kansas, and in the Salina Series, parallel to the Nemaha Ridge as illustrated in The Oil and Gas Journal, issue of Jan. 23rd 1941. This structure consists of 40,000 acres. Will give acreage for completed well. Lease form, PRODUCERS 88, rental free. Kable & Wagner, 704 Main, Friend, Nebr.

WARD-Crane sec. 18B 28, near Silurian test; cheap fee or lease. J. G. Smith, 215 Littlefield Bldg., Austin, Texas.

WANTED—5 to 20 Bbls. shallow production, Kansas or Okla. preferred. Address Box 306, 215 NW 10th, Oklahoma City, Okla.

ATTENTION PROMOTERS: Free lease proven area Russell Co., Kan. for well. Sec. 10 N½ 14, N½ 17-11-15, NE¼ 24-14-13. American Inv. Corp., Newman Grove, Nebr.

EAST Texas Lease, nine year run, near Magnolia, Humble Oil, $1 acre.
LAHM, 2931 Missouri, St. Louis, Mo.

160 ACRES land near Gore, Okla. $375.00 Clear Deed, with all mineral rights. 2026½ West 37th, Tulsa, Oklahoma.

Leases and Drilling Blocks

LEASES ROYALTIES
PRODUCING OR NONPRODUCING
Texas, New Mexico, Oklahoma, Louisiana and Illinois
20 Years Experience
Inquiries Invited

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

OIL PAYMENT, offering $5,000.00 in Oil for $1,000.00 cash. Limited offering. Investigate now. J. F. Houston, Pawnee, Okla.

WILL consider drilling desirable farmouts or blocks, Tex., Okla., La., Ark., Kans., Ill. American Investment Co., Houston, Tex.

U. S. OIL RESERVE lands can be filed for lease on limited acreage by American Citizens. Want several join me in filing block in developing Rocky Mountain Area. Big opportunity. Small expense. Box A-346, The Oil and Gas Journal, Tulsa, Okla.

WANT drilling deal to develop highly geologized Pine Mountain, Segment Basin and Airport structures in Natrona County. P. O. Box 1162, Casper, Wyoming.

FOR SALE: Half interest in 240 acre Ky. lease to responsible party who can finance share of development for Oil and Gas. Depth approx. 700 ft. Address: 907 S.E. Third St., Evansville, Ind.

20 TO 30% on my investment producing oil, gas and redrilling stripper leases. Oil advancing in price, want to expand, will take on a few partners as low as $100.00 interests. My past record proves my ability of handling. This offer good for a limited time only. Laurence Price, Coweta, Okla.

Business Opportunity

INTERESTED financial association 50% either for new enterprise or development of sound existing business connected any branch Oil industry—except drilling and production. Storage or transportation preferred. Box A-492, The Oil and Gas Journal, Tulsa, Okla.

A 1500 BBL. skimming and cracking plant for lease, ample oil can be secured, wide local markets for products. Must have ample working capital; no promotion. Address inquiries to Box A-512, The Oil and Gas Journal, Tulsa, Okla.

FOR exploitation or license, patented floating roof for oil tanks, half the weight of cone roofs. John Jones, 500 N. 18th, Philadelphia, Pa.

Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma

WE BUY & SELL all types of Oil and Gas Royalties. Sales restricted to registered dealers only. Grimes Royalty Co., Tulsa Loan Bldg., Tulsa, Okla.

WE MAINTAIN A MARKET FOR
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IN ALL TYPES OF OIL ROYALTIES

FIRST DEPENDABLE OIL CORP.
522 Fifth Ave., New York, N. Y.

Geophysical Service

CONDUCT your own survey with the new Gravometer, the approved and economical method of locating oil. Write for details. Box A-511, The Oil and Gas Journal, Tulsa, Okla.

LOCATIONS with the TRUMBULL INSTRUMENT have proven themselves in various fields. Write for full details before you drill. TERRA SURVEYS, Box 23, Waterloo, Illinois.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guver. Inc., Wilmington, Delaware.

CAPITAL SEEKERS
Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

Help Wanted

STILLMAN for small refinery. Give references, state age, if married, and wages expected. Terry Carpenter, Inc., Scottsbluff, Nebraska.

DRAFTSMAN with experience in oil refinery design and construction. Location Middle West. State age, education, experience, and salary desired. Box A-473, The Oil and Gas Journal, Tulsa, Okla.

WANTED: Capable and technically trained refinery superintendent. Experienced in construction. Give experience and full qualifications. Answers will be held confidential. Address Box A-515, The Oil and Gas Journal, Tulsa, Okla.

PIPING Draftsmen experienced in process plant layout, equipment piping and related work. Several excellent opportunities for capable men who wish employment in growing business in the Pittsburgh district. Write, stating qualifications and salary expected. All replies will be handled confidentially. Address Box A-514, The Oil and Gas Journal, Tulsa, Okla.

Situations Wanted

REFINERY Engineer, Superintendent, Manager. Well experienced in design, construction and operation of modern refinery equipment. Age 41. Box A-480, The Oil and Gas Journal, Tulsa, Okla.

EXPERIENCED REFINERY MANAGER, age 45, chemical engineer, D. Sc. from leading European university (*summa cum laude* degree), 25 years' experience with major companies, thoroughly trained in operation of refineries and manufacture of all mineral oil products. Ability in handling men. Expert in selective extraction processes. Important publications. Efficient and energetic. Five languages. Excellent references. Now employed but desires change. Address Box A-491, The Oil and Gas Journal, Tulsa, Okla.

MATERIAL and Supply Man seeks position in charge of Oil & Gas Field Supplies. Familiar in drilling, production and pipe line work. Also can assume charge of Commissary purchases. Best of references, can give bond. Nothing promotional. Address Box A-490, The Oil and Gas Journal, Tulsa, Okla.

EXECUTIVE with twenty years' practical experience in the oil industry desires connection with reputable company or independent operator. Experience includes land department supervisor, leasing and title work, acquisition of, and development of properties, and general administrative duties. Capable, efficient and diplomatic. Age 42. Box A-500, The Oil and Gas Journal, Tulsa, Oklahoma.

ELECTRICAL Engineer and Inst. man. Experienced in design, construction and operation of modern refinery equipment. Box A-513, The Oil and Gas Journal, Tulsa, Okla.

Ranches—Farm Lands

FOR SALE: Sportsman's Paradise; 70 acres on Pecos River, 3 well-stocked private fish ponds, good house, unexcelled climate and scenery, best fishing and hunting in state. Write or wire H. H. Errett, Santa Fe, New Mexico.

Geologic Survey

U. S. and State lists of Geologic publications available FREE upon application. Cornwall's Book Store, 723 11th Street N. W., Washington, D. C.

GEOLOGICAL Survey bulletins listed by states. Send for lists. For sale by J. C. Howgate Bookseller, 120 So. Church, Schenectady, N. Y.

Mailing Lists

ROYALTY owners, Oil Investors, Unit holders, Stockholders in Oil and Royalty Companies. Personnel lists of every branch of oil industry. All by States. We buy lists. New Catalogues ready. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Oklahoma.

Legal Blanks

BURKHART'S legal blanks and general forms serving Mid-Cont. oil field since 1908—Okla. Kans. N. Mex. Tex. Ala. Ark. Fla. Ga. Ill. Ind. Ky. La. Mich. Miss. Mo. Neb. N. Dak. Tenn. Wyo. Free catalog samples on request. Burkhart Ptg. & Sta. Co., 115 S. Cinn., Tulsa, Oklahoma.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Equipment Wanted

WANTED: All makes of used Diesel Engines, preferably "Caterpillar" Diesels Write price, condition and location to Fabick Tractor Co., Box 503, Salem, Ill.

ROTARY drilling rig and tools complete. Capable of drilling to 4,000 feet. Send inventory. Must be in good condition and at distressed price. Can also use a slim hole outfit. C. W. Teater, 808 Second Natl. Bank Bldg., Saginaw, Michigan.

For Sale—Equipment

FOR SALE At Oklahoma City: 12 x 8 x 12 National Transit Fig. 122 Duplex Piston Pump. $250.00. I.T.I.O., Bartlesville, Okla.

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Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgment is made, and proofs cannot be shown in advance of publication.

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4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*	*9 Lines*	*3.15*	*5.40*	*7.65*	*9.90*
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This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma